AEROSOL AGE

THE MAGAZINE OF PRESSURE PACKAGING

Packaging Show Report

Determination of Propellant Chilling

Fluid's New Pharmaceutical Line

Gibberellin in Aerosols

Mad Looks at Aerosol Filling

AMA Packaging Conference

Custom Food Filling

MAY, 1959

GILBERT PLASTICS'
STACK CAPS
STACK 'EM HIGH...WIDE...AND PROFITABLY

Why lose out in the race for prominent display position with old-fashioned caps which make your aerosol products difficult to stack?

Gilbert Plastics' Stack-Caps will help your aerosol products STACK UP against *all* competition and increase your sales and profits. For easy handling, sales-producing mass displays, and conservation of valuable shelf space—Gilbert Plastics' Stack-Caps *top them all*.

There's a Gilbert Plastics' closure for *every* use in *all* the wanted sizes. They are available in *all* standard matching, or contrasting colors molded into the plastic stack-caps . . . won't chip or peel. They are durable . . . protect the nozzle . . . are easy to ship, stack and display . . . and simplify price-marking on top.

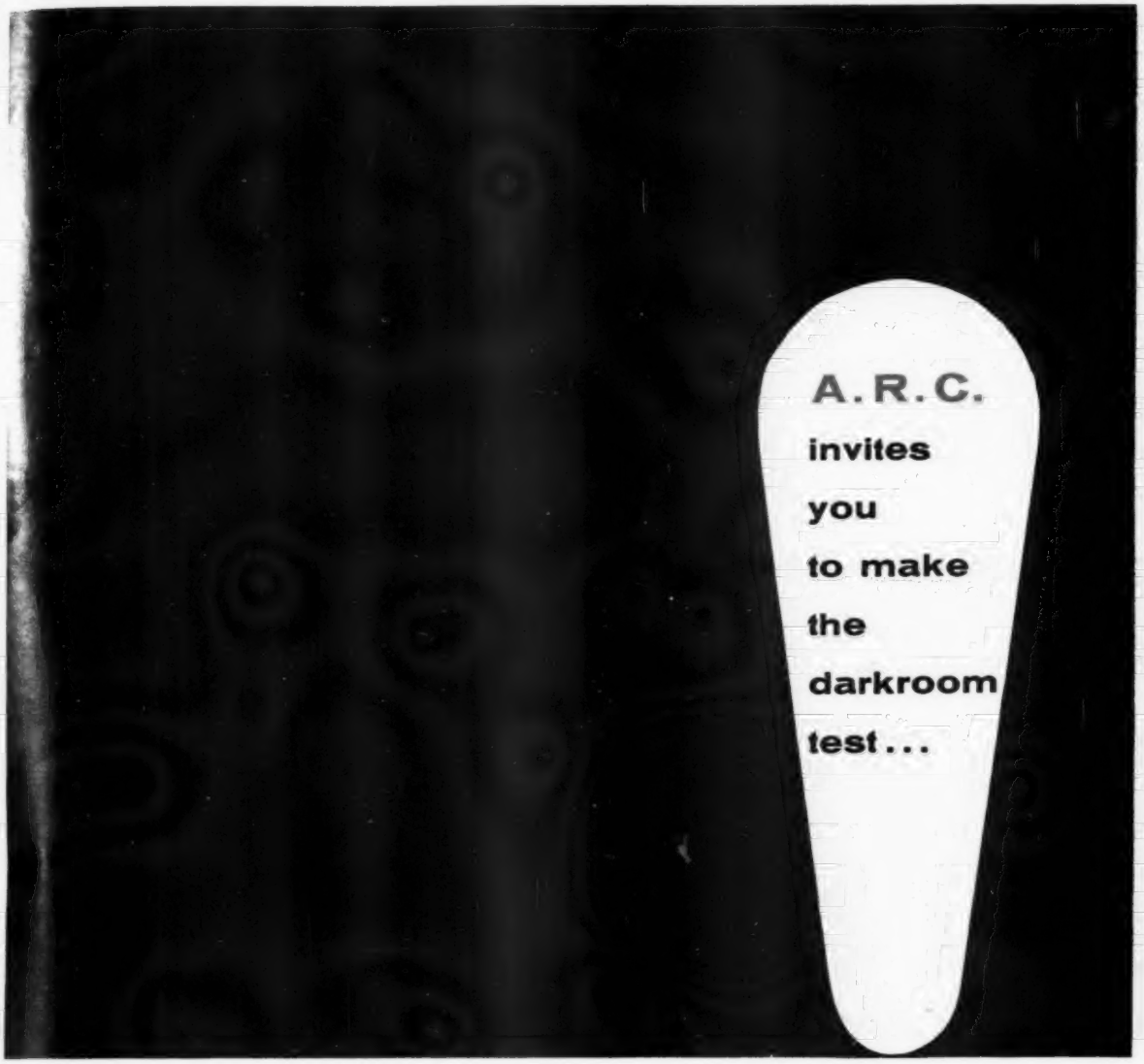
You can depend on Gilbert Plastics for *all* your aerosol closure needs

Write for samples and prices today.

GILBERT PLASTICS, INC.

BORIGHT AVE., KENILWORTH, NEW JERSEY

Canadian Distributor: TWINPAK, Ltd., 6525 Somerled Ave., Montreal, Quebec
British Affiliate: I-to-I PLASTICS, Bridge Close, Romford, Essex, England.



. . . and prove why 87% of all aerosol users prefer the Tilt-Action of the K-38 aerosol valve

Even in pitch darkness—you can't mis-spray the K-38 aerosol valve! Its "tilt-action" automatically aims the spray *away* from the user . . . produces a consistent spray action with *either* hand—and from *any* position!

These are features customers look for—and prefer—in an aerosol product. Features you provide—when utilizing the cold or unmatched fast pressure filling advantages of the K-38. Available in the widest selection of internal meterings, the K-38 also offers the most complete line of spray tips—including the new Mist-Mizer mechanical break-up tip . . . for unpigmented, non-aqueous products. Write for free samples and make your own "darkroom test" today! No cost, no obligation. Write Dept. AA-59.

"TILT ACTION means SALES ACTION"

THE BIG THREE OF A. R. C.
1. K-38 "tilt-action" valves. 2. KN-38 "all nylon" push-down valves. 3. AR-74 "paint and lacquer" valves

AEROSOL RESEARCH COMPANY
43 Circle Ave. • Forest Park, Ill. • Cable Address: AERESCO, Forest Park, Ill.

Aluminum Aerosols by *PEERLESS* have these important advantages

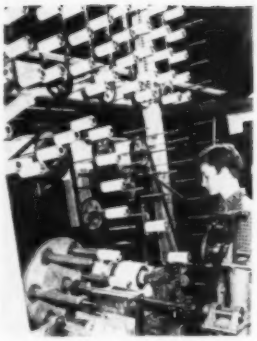
FOR YOUR CUSTOMER 1. Combined durability with beauty. 2. Contents cannot spill, leak or evaporate. 3. Best method of dispensing many products. 4. Sizes ideal for travel, the purse, the vanity table and the medicine cabinet.

FOR YOU 1. Preciseness of valve-cup fit greatly improved by patented* process. 2. Container is sturdy and seamless to withstand all required pressures. 3. Tested by more than three years of manufacture and use. 4. Available in a choice of diameters and lengths for each size—½-ounce to 4-ounce.

NO FINER METAL CONTAINERS MADE ANYWHERE **PEERLESS** *TUBE COMPANY*

BLOOMFIELD, NEW JERSEY

*U. S. PATENT NO. 2,856,102 — OCTOBER 14, 1958



THIS MONTH'S COVER

Rapid roll-on of white enamel is applied to test run of aluminum pressure cans at American Can Company's Washington, N. J. plant. The cans, formed by extrusion, are moved by conveyor after coating to overhead drying ovens. After test period the company plans to introduce the six-ounce seamless containers for pressure-packing of dentifrice and other products. Further details appear on page 99.

MAY, 1959 VOL. 4, No. 5

AEROSOL AGE

The magazine of pressure packaging

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spray your way

to new profits with

ISOTRON®

Aerosol packaging adds new appeal . . . and new sales . . . to all types of products. And ISOTRON® propellents help to power this marketing revolution. A striking example of growth is in milady's hair dressings and fixatives—products that leaped from low sales volume to over 100,000,000 units a year.

Your product too may profit from spray packaging. Pennsalt's ISOTRON Laboratory offers you *personalized* help in finding out . . . in developing the right formulation . . . choosing the container, valve and propellent that give you top performance. And you can count on the experienced contract fillers listed here to take production worries off your hands.

Why not write or call us today for a *confidential* discussion of *your* new aerosol?

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ESTABLISHED 1850

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Aerosol Loaders Specializing in Cosmetic Products

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Dearborn, Michigan
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Arlington, Tennessee
Aerosol Industries
Division of Zenith Drug Inc.
Newark, New Jersey
Allied Professional Associates, Ltd.
Buffalo, New York
A-M-R Chemical Company Inc.
Brooklyn, N.Y.; Los Angeles, Calif.
Arlenge Laboratories
New York, N.Y.
Associated Brands Inc.
Brooklyn, New York
G. Barr & Co.
Chicago & New York
Capitol Packaging Co.
Forest Park (Chicago), Ill.
Claire Mfg. Co.
Ft. Lauderdale, Fla.
Chase Products Co.
Broadview, Illinois
Continental Filling Corporation
Danville, Ill.; Hobart, Indiana
Eveready Pressurized Products
Cleveland, Ohio
Fluid Chemical Company, Inc.
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FIRST... UNDER PRESSURE

Pressure packaging is pushing many different kinds of products to the top in today's tougher sales race . . . with the help of Crown. Crown made the first aerosol package . . . has produced more than any other manufacturer . . . is the only source of both seamless and fabricated aerosol containers. Crown research, experience and facilities are unexcelled in the aerosol packaging field. Let us show you how to put your product under pressure . . . profitably.

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NOW THE GREATEST LINE IN FILLING MACHINE HISTORY BEARS A GREAT NEW NAME

Arthur Colton Company has purchased the 50-year-old Hope Machine Company, thus offering a total of 125 years of filling machine experience and the only *complete* line of filling equipment for the pharmaceutical, food products, paint, chemical, petroleum, cosmetics and dairy products industries.

Now, for fast, accurate, large volume fills of liquid, viscous and semi-solid products, the Colton-Hope piston-type fillers round out our complete range, including the most widely accepted equipment for aerosol container and tube filling, tableting and capsulating.

All Colton-Hope machines will be engineered and manufactured in the Michigan plants of Arthur Colton Company. The combined facilities and experience of the two great pioneers will further expand the special applications and engineering services always provided by both companies. Sales and service will be handled by an augmented Colton staff.

This important acquisition is the fourth by the Arthur Colton Company since it became a division of Snyder Corporation in 1949, all aimed at developing and marketing better high speed machinery for the packaging and pharmaceutical fields.

ARTHUR COLTON COMPANY

DIVISION OF SNYDER CORPORATION

3447 E. LAFAYETTE • DETROIT 7, MICHIGAN

PLANT NO. 2—1030 McDOUGALL, DETROIT • PLANT NO. 3—MANCELONA, MICHIGAN

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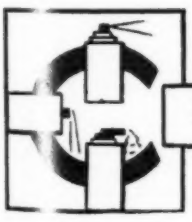
Specialists in Drug, Chemical and Filling Machinery for 75 Years

LABORATORY
QUALITY CONTROL
PRODUCTION....

The links for successful pressure packaging are forged before your product reaches the consumer. Here, at Continental Filling Corporation, the links of laboratory, quality control, and production are intertwined. When it comes to pressure packaging, Continental Filling Corporation has the know-how and the facilities that help make your product scientifically perfect.



CONTINENTAL FILLING CORPORATION

DANVILLE, ILLINOIS

van Ameringen-Haebler

A DIVISION OF INTERNATIONAL FLAVORS & FRAGRANCES INC.

DOES IT PLEASE THE *Lady?*

As a matter of fact, it *must* please the lady if an aerosol is to sell successfully. The very nature of a pressure-packed product makes its odor the *most* important factor in sales appeal and product acceptability.

VAH can help you to please the lady . . .

IN MATTERS OF CREATIVE FRAGRANCE

The VAH perfumers will create for you a distinctive fragrance that is not only a thing of true beauty in itself, but one that is ideally suited to the product, and to the market you intend to influence. You *know* it will be technically right and within the price range you determine. None is better able to serve your fragrance needs than VAH.

IN MATTERS OF AEROSOL TECHNIQUES

The VAH Aerosol Laboratory, excelling in facilities, ability and experience will be happy to guide you in the complete development of your aerosol product. VAH customers enjoy all these services:

- Product Development
- Formulation For Compatability
- New Product Evaluation
- Test Packaging
- Valve and Package Recommendations
- Filling Procedures
- Production Trouble Shooting

If you're thinking of a new aerosol product, think of **VAH!**

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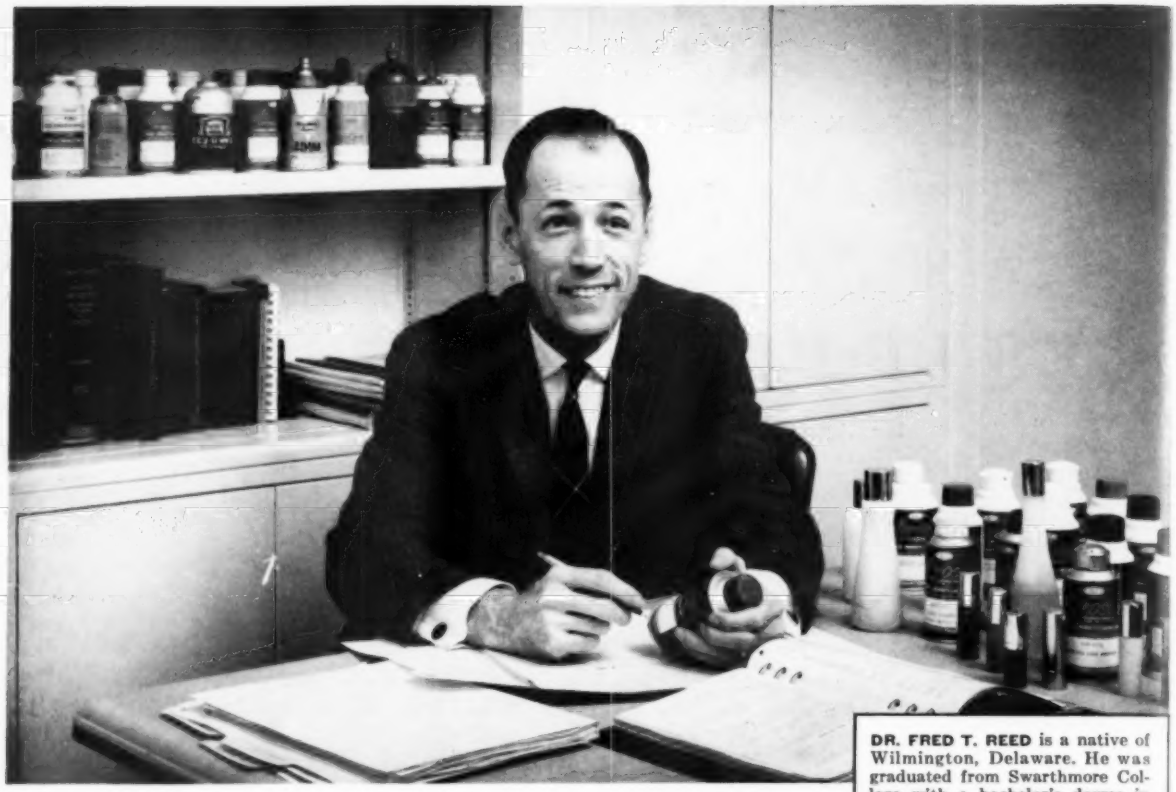

DR. FRED T. REED is a native of Wilmington, Delaware. He was graduated from Swarthmore College with a bachelor's degree in chemistry, then joined the Army. He served in the Pacific area during World War II, attaining the rank of captain. Following his discharge from the Army, Fred entered the University of Maryland, where he obtained his Ph.D. degree in chemistry. He joined the Du Pont Company as a research chemist in 1950 and was assigned to the "Freon" Products Division. Fred has done a variety of work for the aerosol industry including methods for moisture analysis of propellents, propellent systems for low-pressure cosmetic aerosols and studies of anti-perspirant compounds. Currently, Fred is in charge of all sales service work for the aerosol industry at the "Freon" Products Laboratory at Chestnut Run near Wilmington.

"Du Pont's technical know-how helps our customers develop or improve their aerosol products"

says Fred T. Reed of Du Pont

"Here at Du Pont we're continually working with our customers to help them make better aerosols," says Dr. Fred T. Reed of Du Pont's "Freon" Products Laboratory. "This work includes studies of compatibility, flammability, shelf life and a variety of checks on aerosol product performance. We use Du Pont's outstanding technical facilities to assist our customers with their aerosol formulation and product improvement projects."

Technical facilities available through Du Pont are just one of the many advantages you get at no extra cost when you buy Freon* propellents. Loaders or marketers of aerosol products can take advantage of many sales-building services which only Du Pont offers.

In marketing, Du Pont surveys help you expand sales of your products. Through national advertising and promotion, Du Pont works continuously to build markets for aerosols, bringing you a steady flow of new customers. In technical service, Du Pont know-how and experience can help you with aerosol development or solution of production problems. In manufacture of "Freon", Du Pont makes aerosol propellents recognized throughout the industry for their quality, performance and properties. And only Du Pont gives you virtually local delivery service from three plants in the U. S., one in Canada and a network of warehouses.

* * *

If you have a problem in any area of aerosol development, production or marketing, call or write the Du Pont office nearest you. And be sure you buy "Freon" for all your propellent needs.

FREON® propellents

**Freon and combinations of Freon- or F- with numerals are Du Pont's registered trademarks for its fluorinated hydrocarbon propellents.*

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"Freon" Products Division 325
Wilmington 98, Delaware

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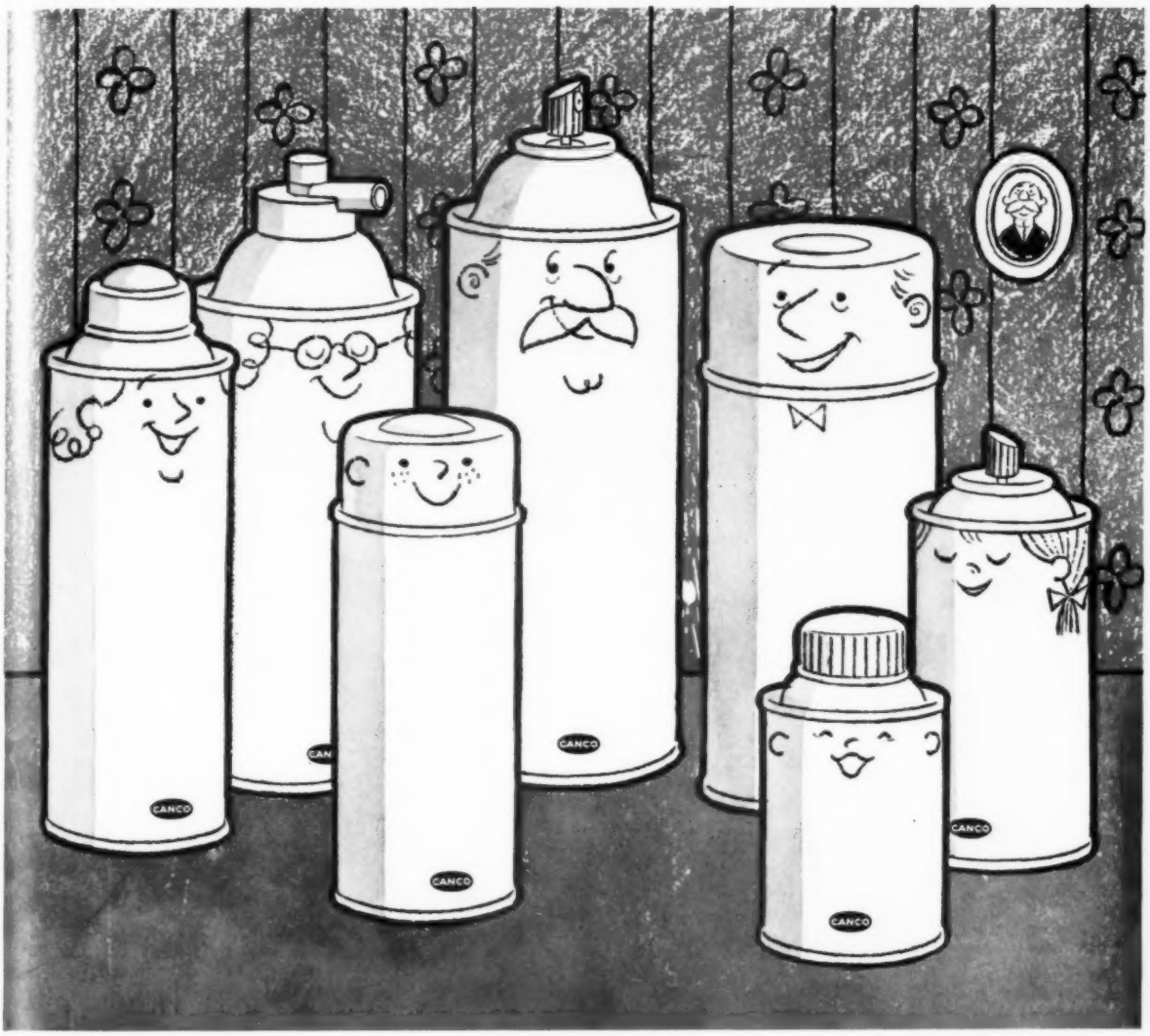
7 S. Dearborn Street
Chicago 3, Illinois

701 Welch Road
Palo Alto, Calif.

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Canco has the largest family of Aerosol cans to fit your product needs!



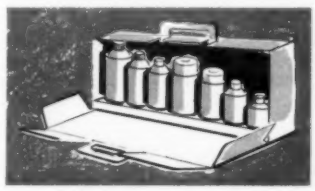
Because Canco has the largest and most complete line of aerosol cans in the industry, you're sure to find the right container to fit your product requirements.

Canco manufactures seven sizes with standard one-inch cup opening or individually styled one-piece tops. Canco also offers an end-use warranty on these containers.

And remember—Canco's famous package design staff is at your service to create new sales appeal for your product with compelling color lithography.

Discover for yourself why so many successful aerosol packers depend on Canco. Call your Canco salesman!

A SAMPLE KIT containing all seven Canco pressure cans is yours free. It's available through your Canco salesman only. Ask him for yours, today!



CANCO Division AMERICAN CAN COMPANY

NEW YORK • CHICAGO
NEW ORLEANS • SAN FRANCISCO

INDUSTRY CALENDAR

International Aerosol Association, annual meeting, Zunfthaus Zur Meisen, Zurich, Switzerland..May 8

Toilet Goods Association, 24th annual convention, Waldorf-Astoria, New York .....May 12-14.

Institute of Food Technologists 19th annual meeting, Bellevue-Stratford Hotel, Philadelphia, Pa. May 17-21

National Sanitary Supply Assn. 37th annual convention, Fontainbleau Hotel, Miami, Fla., May 22-25, 1960.

Chemical Specialties Manufacturers Association, 45th Mid-year meeting, The Drake Hotel, Chicago May 18-20

International Symposium on Gas Chromatography, of The Instrument Society of America, The Kellogg Center for Continuing Education, East Lansing, Mich...June 10-12

European Federation of Aerosol Associations, first meeting (at International Congress of the Chemical Industry), Maison de la Chimie, 28 Rue St. Dominique, Paris, France June 26

Western Packaging & Materials Handling Exposition, Civic Auditorium, San Francisco, Aug. 11, 12 & 13.

Industrial & Building Sanitation - Maintenance Show and Conference, N. Y. Trade Show Building and New Yorker Hotel, New York, Sept. 22-24.

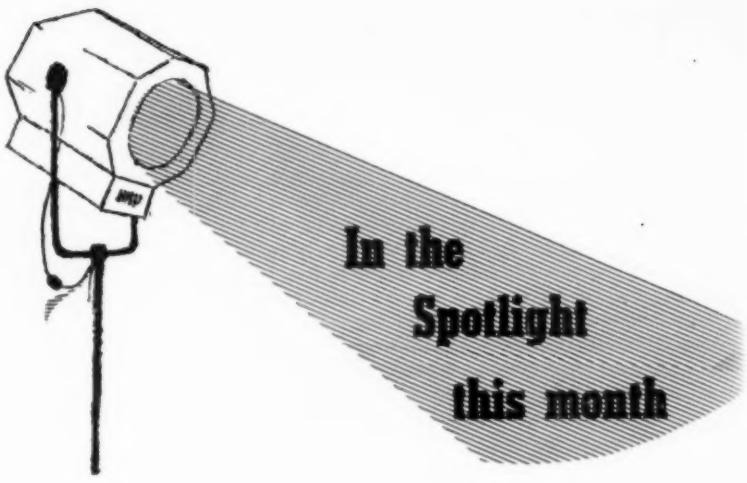
National Agricultural Chemicals Association, Sheraton Lick Hotel, French Lick, Ind. .....Oct. 21-23

Canadian Manufacturers of Chemical Specialties, second annual meeting, Royal York Hotel, Toronto, Nov. 2-4.

Packaging Machinery Manufacturers Institute, annual show, New York Coliseum, New York. Nov. 17-20

Toilet Goods Association, winter meeting of Scientific Section, Waldorf Astoria Hotel, New York Dec. 1

Chemical Specialties Manufacturers Association, 46th annual meeting, Mayflower Hotel, Washington, D. C.....Dec. 7-9



• **National Packaging Show** . . . A sudden spurt of aerosol activity, with containers and filling equipment predominating, made the April Packaging Show in Chicago one of the most exciting yet for the aerosol industry. Complete story, with pictures, begins on page 30.

• **Determination of the chilling Effects of Propellants** . . . Propellant chilling need no longer be a deterring factor in aerosol cosmetics and deodorants. In an article on page 36, Theodore Dunne, of General Chemical's technical service, demonstrates how the amount of propellant chilling for any given propellant mixture can be calculated long **before** the product reaches the market stage.

• **Giberellin in Aerosols** . . . Three key Pennsalt technical people combine talents to put together a complete discussion of formulation techniques, corrosion possibilities, and other key factors in putting on the market a plant growth stimulant product. Their comprehensive article, with many charts and suggested formulations, begins on page 43.

• **MAD Looks at Aerosol Filling** . . . a top flight humor magazine pokes fun at aerosol filling and the variety of products soon to appear in aerosol packages. **Aerosol Age**, with permission of **MAD's** editors, reprints the entire three-page article on page 46.

• **Fluid Locates Pharmaceutical Line in Separate Plant** . . . The easiest way to install a sterile pharmaceutical line is to put it in a separate plant! The why's and how's of Fluid's new installation are discussed in an article beginning on page 41.

you have to
manufacture
Quality
into a
product
At Newman-Green we believe in the axiom of all true craftsmen. Quality cannot be inspected into a piece—it has to be built into the piece.
The aerosol manufacturing and sales policy based on product quality, service and honesty will always provide you with the best buy. This is just as true on the smallest orders as it is on the largest orders. Newman-Green customers are assured of this fine craftsmanship because our first concern is to provide you with the best product quality possible for the money spent. Call your Newman-Green representative today.

NEWMAN-GREEN, INC. *Creative Aerosol Valve Engineering*

151 Interstate Road, Addison, Illinois
Cable Address: NEWGREENCO, Addison, Illinois

Aerosol growth has been both rapid and satisfying, but nevertheless the product of well-planned, exacting design. Valuable time can be gained through a proper program approach. Whether your Aerosol problem be technical, promotional, diversification or sales, qualified advice and guidance will prove most beneficial.

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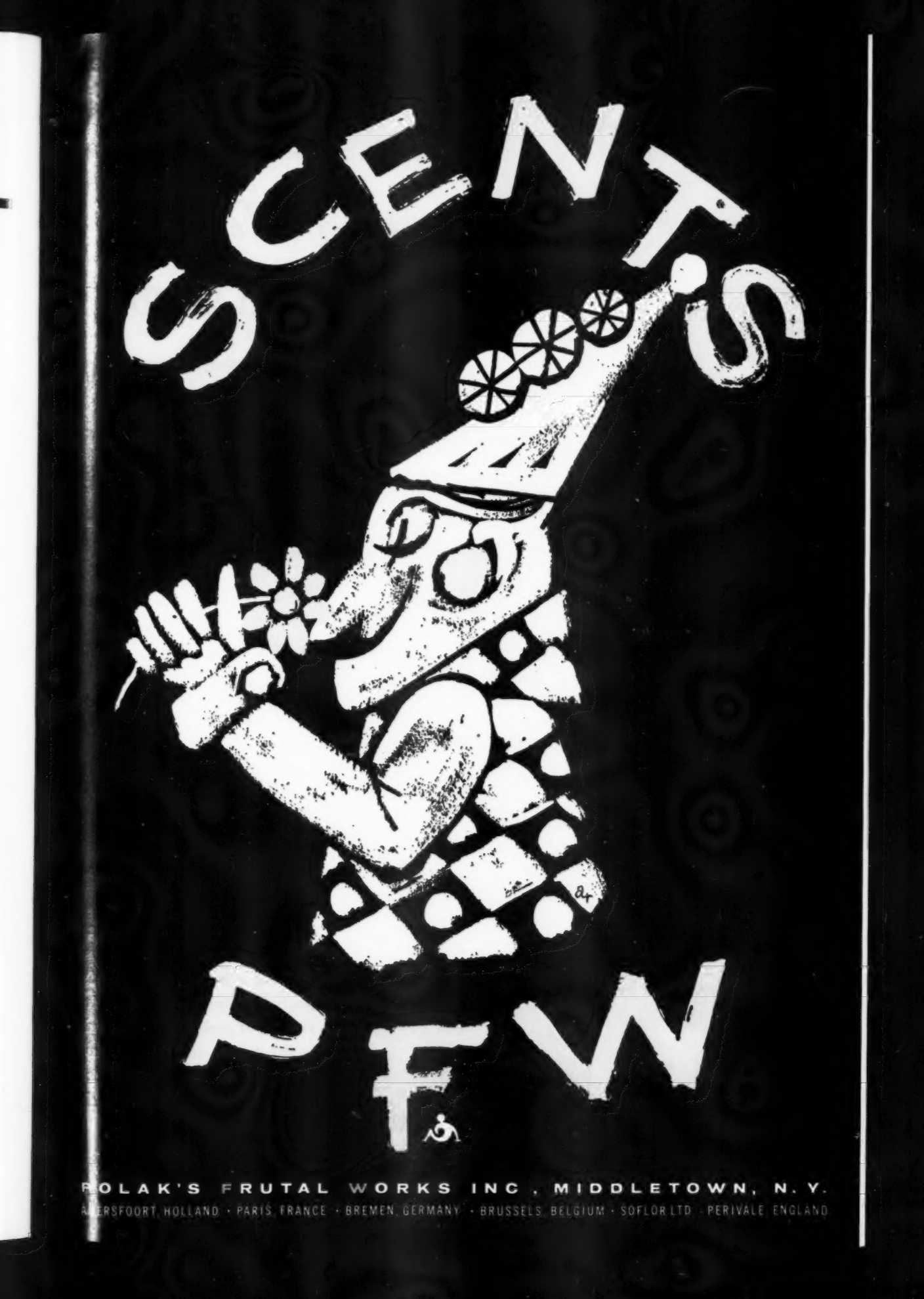
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The answers to aerosol valve ne

and perfected de

THIS MEANS ADDITIONAL PRODUCT

This new Precision spray valve, in addition to its slanted finger rest has an imprinted arrow in a second color which immediately shows the direction of flow for instant and accurate spraying.

A Precision stream spout for dispensing an product, regardless of viscousity, that will pou Currently most toothpaste and syrup manufactu ers, are using this practical and attractive un

● **At Precision there is a continuing program of research and development for each day brings new products to be packaged in aerosol containers. The success of aerosols, in the market place, is based on functional design and attractive appearance for these two go hand in hand to improve dispensing and increase sales.**

PRECISION VALVE CORPORATION

...re being developed

...ilyt Precision . . .

...ICTALI S FOR YOU!

...sing an... graceful spout has proven to be a profit-... will pou... way of dispensing pharmaceuticals and ...nufactu...etics. It is quite often combined with Precisions ...ctive uni...ering valve which dispenses a pre-determined ...unt with a touch.

...tinuing ...erhaps **your product, whether it be** ...pment, ...pensed ... **a foam, a spray, a drop or** ...ts to be ...ream, s... **uld be adapted to an aero-**...s. The ...packag... **Aerosols have proven, in** ...t place, ...ost ev... **case, to increase sales** ...n and ...ause o... **ppearance, economy and** ...two ga... **plicity use. Precision engineers** ...ensing ...be m... **happy to talk with you** ...ut you... **articular needs.**

Upside down spout, designed for toppings, is far simpler to use than ordinary spouts and in addition is far easier to keep clean. Just lift and hold under the faucet.

...ION...00 ... ...PPERHAN AVENUE, YONKERS, N. Y.

Pressurize Your Sales...

with MM&R Fragrances

Let MM&R put a powerful urge to buy in your aerosols. MM&R perfume oils overcome even the heaviest odors of basic chemicals and impart a refreshing, sales-stimulating fragrance to your products, at low cost.

New MM&R perfume oils are being created constantly to keep abreast with rapid advancements in the aerosol field and to meet the special requirements of our customers.

MM&R's cumulative knowledge and experience, gained during more than sixty-three years in the development of perfume oils — over fifteen in connection with aerosols — are at your service in increasing the salability of your products.

Write now for complete information.

MAGNUS, MABEE & REYNARD, INC.

The World's Most Famous Supplier of Essential Oils, Concentrated Flavors and Basic Perfume Oils

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221 NORTH LaSALLE STREET, CHICAGO 1, ILLINOIS

MGK House & Garden

NON-TOXIC *Aerosols*

OPEN SPRING-SUMMER MARKETS

Everyone, especially women, likes the idea of buying just one, non-toxic, all-purpose aerosol insecticide that they can safely use to control flies, mosquitoes, roaches and other insects inside their homes and also use to kill insect pests in their flower and vegetable gardens.

It's easy to enter this market in time for the spring and summer demand with *your own brand* of House & Garden aerosol. This formulation has been approved by U.S.D.A. John Doe label is ready and is yours for the asking. The demand is there and anxious to be satisfied. Get started now. Write for all needed information.

MGK AND *Personal Repellents*

PROVIDE COMFORT FOR HOURS

This fast growing market gives every indication of immediate expansion. Shorter working hours, daylight savings and increased incomes provide more time and money for late afternoon and evening activities when pests are most active. MGK Repellents effectively repel mosquitoes, ticks, chiggers and flies, especially biting flies. Safe and non-staining when used on Dacron, Nylon and Orlon fabrics. Plenty of time to reach the big spring-summer markets. Write for details. Prices are right.

MGK McLAUGHLIN GORMLEY KING *Company*

1715 S. E. Fifth Street / Minneapolis, Minnesota

McLAUGHLIN GORMLEY KING COMPANY
1715 S. E. Fifth Street • Minneapolis, Minnesota

Please send:

- ☐ The approved "John Doe" label and technical bulletin for the non-toxic House & Garden aerosol.
- ☐ Full details on Personal Repellents.

NAME_____

ADDRESS_____

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whatever your AEROSOL product

FELTON
fragrances insure its success!

There is a whole new world of merchandising opportunities for cosmetics, household and industrial products, thanks to Aerosols. But . . . Aerosols present special problems of fragrance compatibility. That is where Felton's creative experience makes the big difference! Our perfume chemists and Aerosol technicians will adapt or custom-create the fragrance to meet the exacting requirements of your product and give it more sales appeal.

EXTRA ADVANTAGES OF FELTON'S AEROSOL PERFUME DIVISION

- Aerosol laboratory equipped with the most modern filling apparatus.
- Testing equipment for checking every component making up your Aerosol product.
- Extensive experience on problems of end odors and irritation factors.
- Samples of your perfumed preparation submitted in the actual Aerosol container ready for your evaluation.

CONSULT WITH US TODAY

FELTON CHEMICAL COMPANY, INC.
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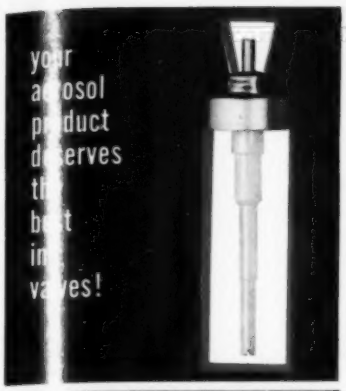

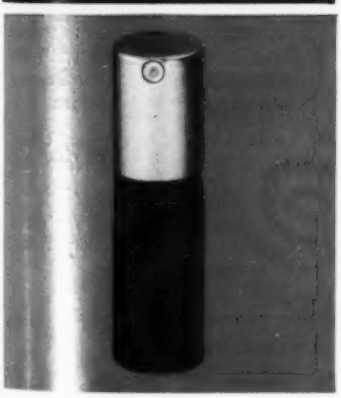

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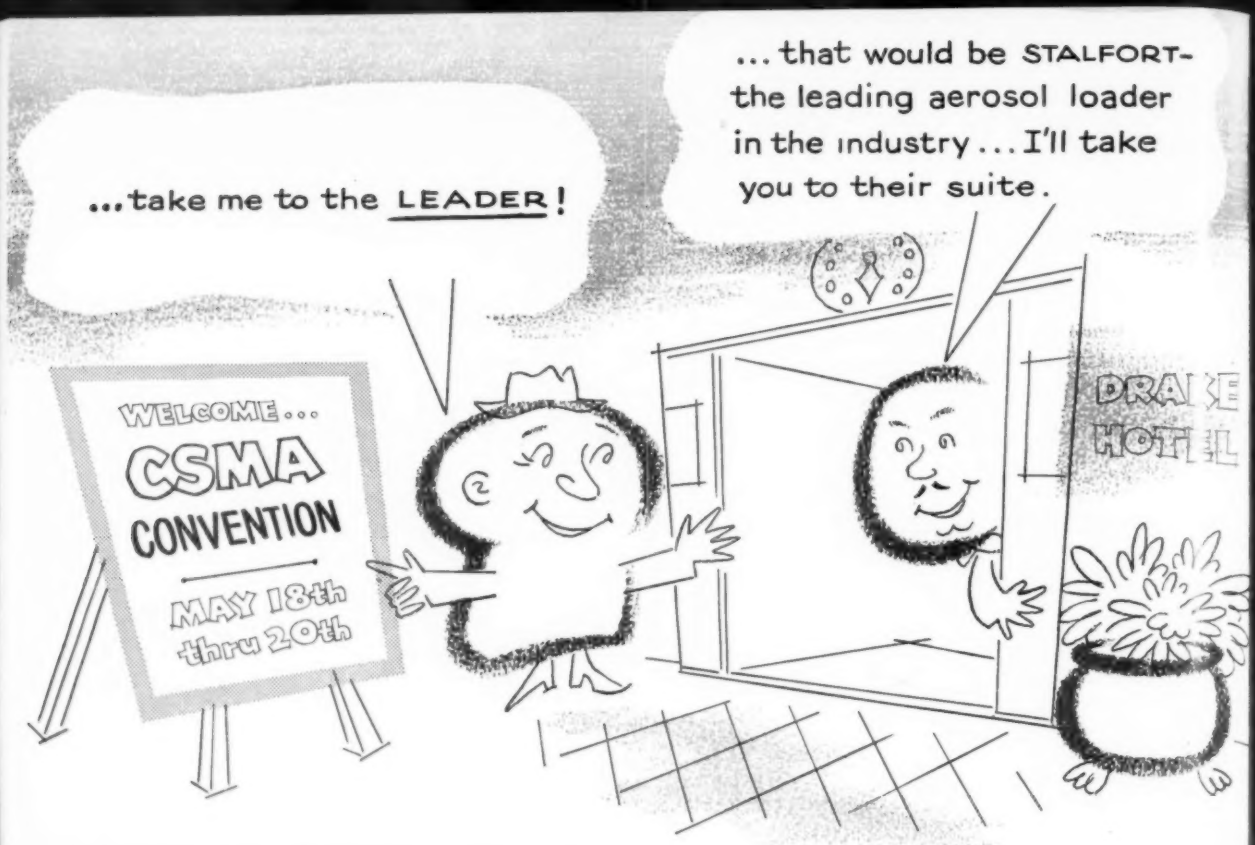
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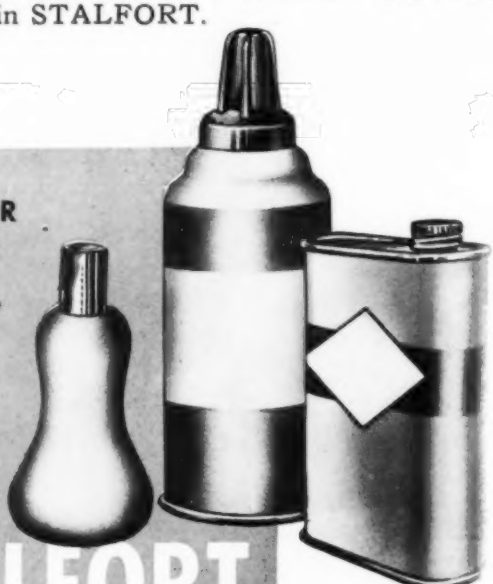

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EDITORIALS

The Fair Trade Bill . . .

A legislative fight is brewing in Congress over a bill that could have profound effects on future aerosol product marketing. Called the Fair Trade Bill, it is sponsored by Rep. Oren Harris (D-Ark) and has had heavy backing from the National Association of Retail Druggists, the National Congress of Petroleum Retailers, and other strong lobbying groups.

The measure is specifically aimed at preventing "discount" selling by permitting the manufacturer far more control over retail prices. The backers of the bill thus seek to aid the survival of small retailers, and at the same time to bolster state fair trade laws, which have encountered heavy opposition over the past three years.

In effect what the Fair Trade Bill is really aimed at doing is to take the burden of competition off the small retailer (who, with the increase in discount stores, seems little able to cope with it) and put it into the hands of the major manufacturer. This, it is believed, would keep prices at a level which would enable the smallest retailer to make a fair profit and stay in business.

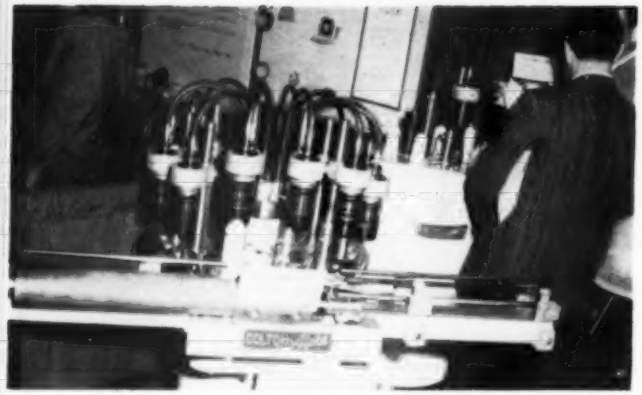
The most striking shortcoming of the Harris bill is that, in the words of Federal Trade Commissioner John W. Gwynne, it is "inconsistent with the American system of free competitive enterprise and contrary to public policy expressed by Congress in antitrust laws since 1890." By artificially "fixing" certain areas of the retail price structure, we feel the bill would (1) inevitably raise retail prices; (2) eventually cause a price spiral that would have immediate inflationary effects on the rest of the economy; and (3) probably not eliminate discount houses anyway.

Economists have deplored the fact that in some cases prices no longer seem to adjust promptly enough to the influences of supply and demand. Manufacturers tend more and more to meet oversupply *not* by cutting prices, but by *cutting back production*. The restriction of price competition at retail level would be one more unhealthy step in our current retreat from the basic principles of the capitalistic system.

In March, the *Wall Street Journal* came up with a shrewd analysis of the situation: "Despite the lessons of recent history, price fixers are again trying to shore up the jerrybuilt federal fair trade laws. Not the least among the lessons they have failed to learn is the fact that a large measure of the growth and popularity of the discount houses can be attributed to the fair trade laws."

Among the other particularly valid objections which might be pointed out are: (1) it would impose fair trade restraints on states which have demonstrated that they don't want such legislation; (2) it would put the federal government into a law enforcement area that now belongs to the states; and (3) it would encourage price fixing among the major marketers and manufacturers. But one far more tangible reason for opposing it is that it works directly against efficiency, incentive, imagination, and enterprise at the retail level.

For just as the supermarket was a step forward from the small, inefficient retail grocery stores of the 1930's, so discount houses are judged in some quarters to be a step forward in bringing efficiency to retail selling. And in the strictly narrow area of aerosol sales, it is likely that both these highly efficient retailing media are helping to sell pressurized products by bringing more potential customers into direct contact with them. Neither should be discriminated against in any legislation that professes to encourage the American free enterprise system.



The Colton-Alpha high speed rotary aerosol crimper.

Alcoa's Aluminum container exhibit.

One of two DuPont Polychemicals container exhibits, this one featuring Delrin units.

AEROSOLS showed genuine indications of attaining their deserved station in the packaging field as the National Packaging Exposition ended five days at Chicago's International Amphitheatre on April 17. Not only were aerosols the feature of at least five major booths, and the secondary feature of at least five more, but they appeared in the booths of label printers, adhesive manufacturers, and a score of other booths that had given the aerosol package short shift in previous shows.

From a strictly aerosol standpoint, five booths could lay claim to some of the most substantial aerosol interest. Of these probably the one drawing the largest attendance was that of the Mojonnier Associates Division of the Kartridg-Pak Corp., supplier of filling equipment, which had two complete aerosol lines in full operation, one the in-line "800 series" for pressure or cold filling, the other a high-speed rotary line called the "900" line. Both lines were filling actual products, one a shaving cream and the other a window cleaner, and these products were given out as samples to people visiting the booth. Also exhibited was a complete laboratory filling unit, though the two filling lines easily drew the largest attendance.

Aerosols were the featured attraction in the Crown Cork and Seal booth. With the help of pretty female demonstrators, the exhibit contrasted

Continental Can featured both aluminum and conventional tinplate containers, while Adolph Gottscho (at right) demonstrated its aerosol "Markocoder" in action.

NATIONAL PACKAGING SHOW

Aerosols come into their own at the largest packaging show

five common tasks with the speed and convenience provided by newly developed aerosols designed for these same tasks. The aerosol demonstration took place on a 25-foot stage divided into five stations, each with a backdrop showing the old way of pumping up a tire, shining shoes, administering first aid, cooking pancakes, and making coffee. A pressurized tire inflator, shoeshine, bandage spray, pancake batter, greaseless cooking lubricant, and instant liquid coffee—all in Crown containers—were demonstrated in action.

General Chemical Division of Allied Chemical Corp., which for a number of years has devoted its booth to an aerosol information exhibit, this year increased the size of its booth to provide for the many aerosol marketers (and prospective marketers) that gathered there. One end of the exhibit was devoted to a specially-designed rack which featured promotional literature from the major aerosol suppliers and fillers.

A surprise aerosol exhibitor (that is, one that hadn't previously announced its intention of exhibiting aerosol products) was the Bernardin Bottle Cap Co., of Evansville, Ind., which gave over its entire booth to some attractively designed "Zytel" and "Delrin" aerosol containers. This was the official unveiling of these four-ounce containers, which were shown in a variety of colors with both metallic and non-metallic finishes. A unique feature of the new container line is a bottom skirt, which makes it less likely to tip over and at the same time adds to its general attractiveness.

Monroe-Danford & Co., sales agents, showed products for Metal Fabrications, (custom decorators of metal perfume containers and fabricators of metal caps), Britel Products (injection molders of plastic caps), and Wilmington Plastics (fabricators of Zytel and Delrin aerosol containers). The major share of the booth was given over to a large aerosol display, including luxury-type aerosol containers and caps and several new types of perfume containers, introduced for the first time at the show.

Aerosol containers also occupied a large share of the attention at the DuPont Polychemicals booth. The new Delrin container was shown for the first time (in a variety of shapes and sizes) and the Zytel containers were also much in evidence. A pretty female demonstrator gave a talk on the various attributes of Delrin as a container and wrapping material. Since this was the first public introduction of Delrin, the containers attracted considerable attention.

Aluminum Co. of America, which had hitherto paid the aerosol field little serious attention in its packaging show exhibits, this year had one large aerosol stand featuring the containers of a number of fabricators utilizing Alcoa aluminum. Containers in various sizes and finishes from

L. T. Flanner (General Chemical) in front of General Chemical's huge aerosol information booth. At right, one of Mojonnier's two complete aerosol filling lines.

Marjorie Vaughan, pretty Crown Can demonstrator, is pictured giving her talks at four of her five product stations. From right (at top) she demonstrates a shoe shine, nail polish, pancake batter and pan spray, and pressurized coffee.

Peerless Tube, White Metal, Victor Metal Products, and Continental Can took up most of the display space, though there were a number of standard (six-ounce and above) and small-sized containers produced on Alcoa pilot plant operations.

Aluminum cans also were shown at Continental Can's huge exhibit. These relatively new aluminum aerosol containers were displayed on a board next to Continental's well-known line of tin-plate containers.

American Can also showed some of its first aerosol aluminum cans. One feature of the exhibit was a demonstration of impact extrusion, with an operating model of an extrusion press turning out rigid aluminum extrusions of the aerosol container type. The lightweight, seamless containers are expected to be placed on the market by Canco sometime later this year.

Still another exhibitor of aerosol containers was Owens-Illinois, newest entrant into the coated glass field. The entire line of O-I glass aerosol containers was one of the features of the show, and, as with the other exhibits, O-I technical personnel were on hand to advise about possible product use in the company's containers.

After containers, probably the next most impressive number of aerosol exhibitors were those featuring aerosol filling machinery and container handling equipment. Next after Mojonnier, which easily walked off with "the-most-space-devoted-to-aerosol-filling-equipment" category, came a strong entry from Colton-Hope, the newly merged line of Arthur Colton (with Alpha) and Hope Machine. About one-half of the Colton-Hope exhibit was given over to aerosols, the most important single unit being a high-speed rotary crimper. Also on prominent display were a bottle crimper and a pressure filler.

Adolph Gottscho once again showed its "Markocoder" portable imprinting machine at work coding the concave bottoms of tinplate aerosol containers. The unit, which operates at speeds of up to 600 units per minute, can be moved from one line to another.

Other machinery exhibitors with displays of interest to aerosol packagers included:

Arenco Machinery Co.—a collapsible tube capper and sealer and a vial capper that may be applicable to small aerosol container handling.

MRM Co.—a liquid filler.

Labellette Co.—an aerosol can labeler.

Standard Knapp Division of Emhart Manufacturing—an automatic cartoner.

U. S. Bottlers Machinery Co.—a high speed bottle filler which is convertible to aerosol ingredient filling.

The Gray Co.—Graco "Fluron" propellant pumps.

(Top left): Paul Silverman (Helene Curtis) pauses in front of Mojonnier's rotary filling line. Bob Webster (Air Reduction) describes aerosol principle. Bottom, American Can and Bernardin Bottle Cap exhibit aerosol containers.

Syntron Co.—vibrators of the type that are used in aerosol valve assembly machines and in certain other aerosol operations.

Elgin Filling—a two-head ingredient filler.

Popper & Sons—a high speed liquid ingredient filler.

Climax Products Division of Lodge & Shipley Co.—container unscramblers, fillers, and other handling equipment.

The Pfaudler Co. Division of Pfaudler Permutit, Inc.—a ten-station filler for liquid ingredients.

The Multi-Fill Machine Co.—a highly accurate pharmaceutical filler.

Toledo Scale Co.—a checkweigher for use in aerosol lines.

But the container suppliers and equipment makers weren't the only ones to devote major attention to aerosols. Air Reduction Co., the leading supplier of compressed gas propellants for aerosol products, gave over its entire booth to a display illustrating the merits of aerosol packaging. A twelve-foot chart showed the physical and chemical properties of the leading compressed gases, and on a table in front of the booth a new meat tenderizer, punch concentrate, maple syrup, and hand cleaner (all in pressurized cans) were displayed.

Walter Frank Organization and J. L. Clark Manufacturing Co. both exhibited their decorative aerosol stacking caps, Clark introducing its spring-grip cap first announced last month.

And there were still more aerosol exhibitors!

Reynolds Aluminum, whose exhibit featured mostly new uses for aluminum foil, had on display a new foil label which gives the standard aerosol container a "luxury" appearance. Other aerosol labels turned up in the booths of Rotogravure Packaging, Crown Zellerbach, United States Printing & Lithograph Co., and one or two others. And one adhesive supplier, Morningstar-Paisley, showed a shatterproof coating for glass aerosol bottles.

Only one exhibitor, the Ideal Stencil Machine Co., displayed finished aerosol containers for its line of stencil inks.★

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Mina Addresses Safety Group

Dr. F. A. Mina, technical director of Lodes Aerosol Consultants, Inc., New York, was a principal speaker before the 29th Annual Safety Convention and Exposition, sponsored by the Greater New York Safety Council at the Hotel Statler in New York on April 13.

Dr. Mina, representing the Aerosol Division of the CSMA, reviewed the development and growth of aerosols and their application in the hands of consumers. He also summarized the excellent safety record of the aerosol industry to date.

Aerosols Chief Subject at Management Group's 28th Packaging Conference

THE horizon for aerosols is broad and far away, R. J. Hennessy, head of packaging development of Lederle Laboratories, Pearl River, N. Y., told the 28th National Packaging Conference of the American Management Association in Chicago early last month. The conference was held in conjunction with the first three days of the National Packaging Exposition.

Mr. Hennessy, speaking to the session on "Package Design and Package Utility", declared that, despite the impressive figures recorded by the aerosol industry in recent years, the aerosol has "barely scratched the surface of its true potential." He predicted that this particular type of package will be commonly accepted by all consumers and will come to be known as "convenience packaging".

"Our studies have indicated that the aerosol is the most wanted convenience in the packaging field. Products so packaged do away with make ready and put away." He suggested that the export field offers "tremendous possibilities" for aerosol development, and that inquiries received at Lederle indicate the ever-growing interest in this type of packaging overseas.

As guides to prospective aerosol packagers, Mr. Hennessy suggested they:

(1) must have a product and know exactly what it will do under a variety of conditions.
(2) decide whether it will be best dispensed as a spray, foam, or liquid.
(3) do necessary research for the proper propellant and valve.

After all these key points have been determined, he advised extensive package testing to find out the physical and chemical strengths and weaknesses of the container, formulation and valve.

In assisting the aerosol packager in these studies, Mr. Hennessy came out strongly in favor of use of the aerosol custom packager, particularly in the early stages of product development. "The custom packager has the necessary know-how, supplies, and necessary technical data to offer invaluable help in getting the product ready for market."

R. J. Hennessy

However, he cautioned, the custom packager should be given *all* pertinent information about the product, and where desirable, the marketer should have one of his own technical people in the filler's plant to help supervise product handling and packaging. "Regardless of who does the packaging, your name is on the label and *you* are responsible for any shortcomings of the packaged product. The pressure package must be right, and must be presented in such a way as to make the consumer want more of the product."

Turning to possible technical trouble spots for the aerosol packager, Mr. Hennessy advised that one major source of trouble can be crimping machine adjustment, particularly when there is to be a transition from metal to glass containers. He also suggested that the packager develop detailed specifications for all packaging components used in the aerosol package, so as to reduce any chance of inconsistency in package quality due to mismatched or inferior components.

LARGE scale conversion from tinplate to aluminum for can making will not take place until there is a further decrease in the price of aluminum raw material. This opinion was expressed by F. B. Newcomb, vice-president of commercial development of the American Can Co., New York. Acknowledging that aluminum can-making technology had been added to substantially in recent years, Mr. Newcomb made special mention of recent economic developments in the aluminum field, which he said would contribute substantially to the future of the metal as a can making material.

He reported that since World War II aluminum production capacity has continued to rise, and that in 1959 capacity will be about twice the volume of the basic material delivered to industrial market. He implied that the chief advantages, under present pricing structures, will come in the large-volume containers. He cited figures reported in a 1958 survey by Arthur D. Little in which it was predicted that aluminum could capture anywhere from 5 to 20% of the total can market in the next ten years (depending on price and fabrication methods used).

The aluminum can, he declared, should capture at least a share of the aerosol market, particularly for pharmaceuticals, cosmetics, dentifrices, and possibly for foods. He reported that American Can would have six-ounce seamless aluminum aerosol can ready for the market later this year.

Because of relative strength of aluminum as compared to tinplate, Mr. Newcomb said it is unlikely that side seams on the new commercial

aluminum cans will be soldered. Cemented and welded cans are both possibilities, he suggested, depending on the prospective use of the can. The three most promising methods of fabrication, he said, are reverse-impact extrusion, drawing and ironing, and forward extrusion.

One economic factor that hasn't been sufficiently explored, he suggested, is how can handling methods will have to be revised to better handle aluminum containers, which dent easier and are generally softer. These factors may necessitate slower line speeds, which may or may not be offset by the savings realized in aluminum's lower shipping weights.

ALL marketers will henceforth have to pay more attention to package design and package utility. This was the conclusion of Warren B. Dubin, brand manager of Chesebrough-Pond's Inc., New York. Reporting that all major marketing outlets are swinging toward self-service merchandising in ever increasing numbers, he advised that the most important function of advertising for the mass, self-service market is to pre-sell the item and create a definite brand image.

"We have found that women have one idea of the contents of a package and another of the actual package itself." He reported that, because of this shift to selfservice, packaging has become the most important single factor linking advertising to the point of purchase. Though packaging is not in all cases the paramount factor, related packaging in a varied product line is bound to be a merchandising "plus".

Mr. Dubin then went into a brief history of his company's introduction of the first pressure-packaged face creams. He reported that the decision to go into the aerosol for this type of product was reached about a year ago, after successes were observed with nitrogen-propelled dentrifices. Glass was the first consideration, but after taking a long look at its shortcomings at that time the Pond's management decided to inroduce the line

(*Continued on page* 120)

CSMA Meets in Chicago, One Aerosol Session Planned

THE Aerosol and Insecticide Divisions, whose meetings are of chief interest to the aerosol industry, will have only one meeting each at the 45th midyear meeting of the Chemical Specialties Manufacturers Association in Chicago's Hotel Drake, May 18-20.

Both division meetings will take place on Tuesday, May 19, with the Insecticide Division convening in the morning and the Aerosol Division in the afternoon. Highlight of the Aerosol Division session is expected to be the yearly aerosol product survey, a compilation of total aerosol products filled for 1958. Preliminary reports indicate that the survey will once more show a substantial increase over the figures for the previous year.

Among the features of the general and luncheon sessions of the association will be an address titled "Patterns for Success' by James Q. DuPont, administrative assistant in the public relations department of E. I. du Pont de Nemours & Co., Wilmington, and an address by William C. Stolk, president of American Can Co.

The company "Open House" will be held from 5 to 9 p.m. on Tuesday evening. Final scheduled event of the midyear meeting will be the usual cocktail party and banquet on Wednesday evening, May 20.

CSMA Midyear Meeting

Program

Morning
Tuesday, May 19

Insecticide Division

Report of Division Chairman
by John A. Rodda, Fairfield Chemical Division, FMC.

Insecticide Products Survey
by Joseph E. Lee, McLaughlin Gormley King Co.

Symposium on Fly Control
Harry L. Haynes, National Carbon Co. (moderator)
Ellsworth Fisher, dept. of entomology, University of Wisconsin
D. E. Howell, dept. of entomology, Oklahoma State University
W. C. McDuffie, ARS, USDA

Specifications and Sprayers
by L. B. Hall, U. S. Public Health Service

Tuesday afternoon

Aerosol Division

Report of Division Chairman
by E. J. McKernan, Seaquist Manufacturing Co.

1958 *Aerosol Product Survey*
by Frederick G. Lodes, Lodes Aerosol Consultants, Inc.

Food Aerosol Propellants
by Frank Blodgett, E. I. duPont de Nemours & Co.

Methods for Determining Presence in the Air of Hair Lacquer Particles
by R. A. Fulton, ARS, USDA

The Use of a Seviers Extrusion Rheometer for Predicting the Behavior of Fluids in Pressure Cans
by J. S. Wolff, B. F. Goodrich Chemical Co.

Blending of Different Propellants
by E. E. Husted, Union Carbide Chemicals Co.

(Angelique)

(Elizabeth Arden)

(Avon)

DETERMINATION OF POSSIBLE CHILLING EFFECTS OF PROPELLANTS

*By Theodore F. Dunne**

Technical Service Department
General Chemical Division, Allied Chemical Corp.
Edgewater, N. J.

THE rapidly growing interest in cosmetic and pharmaceutical aerosol products has created a need for information regarding the chilling effects caused by aerosol propellants when sprayed onto the skin. Frequently, a concentrate can be combined with any one of several propellants or propellant combinations to yield a product with satisfactory aerosol characteristics. When such a choice of propellants is possible in the formulation of a cosmetic or pharmaceutical aerosol, consumer acceptance of the product can be enhanced by selection of that propellant which will keep the skin-chilling effect at a minimum. In this connection, aerosol baby oils and underarm deodorants can be cited as just two examples of products for which chilling effect is of prime importance. In view of the foregoing, a technique has been developed for providing data that will assist aerosol chemists in selecting the least chilling from among several otherwise suitable propellants. The technique enables measurement of relative chilling effects of individual propellants, mixtures thereof, and propellant-concentrate combinations.

Method

The initial experimental plan for determining skin-chilling effects called for the spraying of the formulations over an ironconstantan thermocouple held in position on the skin of the anterior surface of the forearm. Preliminary experiments soon proved this method to be impractical for several reasons that will be discussed later. Consequently, it became necessary to devise a surface that would approximate the temperature-change behavior exhibited by the skin, but which, at the same time, would yield accurate and reproducible results not obtainable by making measurements directly on the skin. A rather simple device was found to meet these requirements.

A piece of cardboard, four inches square, was cemented onto a sheet of aluminum foil (Fig. 1). A heating coil of resistance wire was attached to the surface of the cardboard, and an ironconstantan thermocouple was taped to the center of the heating coil. The coil and thermocouple were then covered with a second sheet of 0.002-in. thick aluminum foil which was folded back over the edges of the cardboard and cemented firmly in place. The result was an aluminum envelope enclosing the heating coil and thermocouple. The device was completed by tacking the aluminum envelope to a wooden backboard. The temperature of the heating coil was adjusted to approximately 92° F by means of a rheostat. It was not necessary to maintain the test surface at a constant temperature prior to it being sprayed, because the magnitude of

* Paper presented during 45th annual meeting, Chemical Specialties Manufacturers Association, New York, Dec. 10, 1958.

chilling effect of any propellant was found to remain constant for initial surface temperatures between 85 and 100°F. The influence on chilling effect of initial temperatures outside this range was not investigated.

A potentiometer pyrometer was used to record the temperature changes registered by the thermocouple (Fig. 2). The instrument automatically recorded temperature changes on a circular chart calibrated in °F units, and was capable of responding to a temperature change between 0 to 160°F, its entire recording range, in 12 seconds. This was equivalent to a response rate of 13.3°F per second. The upper and lower limits of the temperature-change curve could be read with an accuracy of ±0.5°F. The chart moved at a rate of one revolution each 24 minutes.

The propellants and propellant-concentrate combinations were filled into six aerosol cans capped with valves having orifice diameters of 0.018 in. internal and 0.080 in. external. The actuator button had an 0.018-in. orifice. The same button was used throughout all the tests to eliminate possible errors due to orifice variations.

Before spraying a sample to measure its chilling effect, the actuator button must be aimed carefully so that the thermocouple will be in the exact center of the spray pattern. Once satisfactory aiming has been achieved, the assembly must be held immovable, except for vertical travel of the button and valve stem, in order to avoid erratic spraying.

A specially-designed holder (Fig. 3), served this purpose. Its essential parts are as follows: a ring-stand fastened to a table and equipped with clamps; a semicylindrical shoe in whose curvature the test can be fitted concentrically, the two being fastened together by a strong rubber band; an oval plunger rod about 5 in. long, equipped with a close-fitting sleeve; and a knife-edged piece of metal attached to the bottom of the plunger to engage a slot in the top of the test-can actuator button.

The shoe and the plunger-sleeve were clamped to the ringstand; the former was simply half a bottomless six oz. aerosol can cut along the vertical axis. The plunger assembly was positioned vertically atop the test-can. It was needed to prevent rotation of the actuator button as well as sidewise motion of the valve stem, while still permitting normal operation of the button for spray purposes. Manual depression of the rod therefore produced spray, and release of pressure thereon terminated the spray. Again, it is emphasized that immobility in all parts, except for vertical travel of the plunger, actuator button, and valve stem was essential for accurate spraying.

At the outset of the experiments, it was found that the timing of spray duration was critical for obtaining reproducible results. A stopwatch was found to be an inadequate means for monitoring the control of spray time. It was necessary, therefore, to construct a more adequate timing device. A timer to meet the requirements was made by equipping a motor, having a speed of 24 rpm at 110 volts, with a clock face of 14 in. diameter (Fig. 4). A pointer was attached to the shaft of the motor. The motor speed was adjusted to 3 rpm by means of a rheostat. Two electrical contacts were attached to the clock face, one at 12 o'clock and the other at 6 o'clock. As the pointer revolved, it caused each contact, in turn, to activate a buzzer. The time interval between the buzzing sounds was 1.5 seconds. This aparatus simplified the problem of alerting the operator to

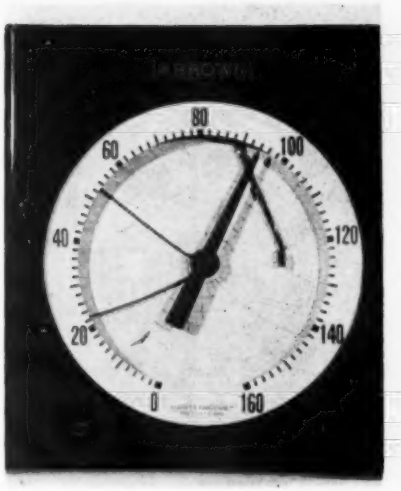


Figure 2: Potentiometer Pyrometer used to record temperature changes.

the approaching instants for starting and stopping the spray. With a little practice, the operator could start and stop the spray in time with the buzzer, without looking at the clock.

The chilling effect of all samples was determined with a distance of 4 in. between valve orifice and target, and a spray duration of 1.5 seconds. In order to determine the influence of distance and time variations on chilling effect, a number of the samples were tested at a distance of 6 in., with spray durations of both 1.5 and 3.0 seconds. It was not considered practical to measure chilling effect with a valve-orifice-to-target distance in excess of 6 in., because many of the sprays largely evaporated before hitting the target, and the area of contact could not be accurately observed. This was particularly true of the high-pressure, low-boiling propel-

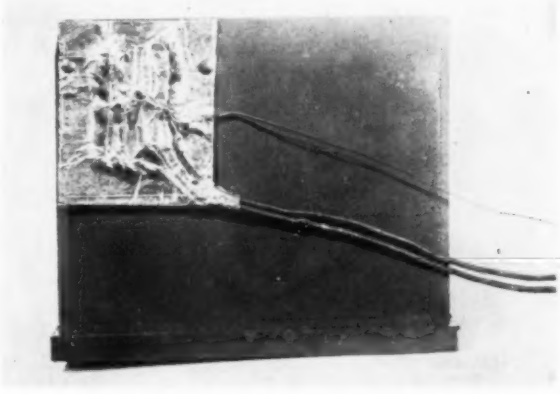


Figure 1
Aluminum envelope enclosing the heating coil and thermocouple.

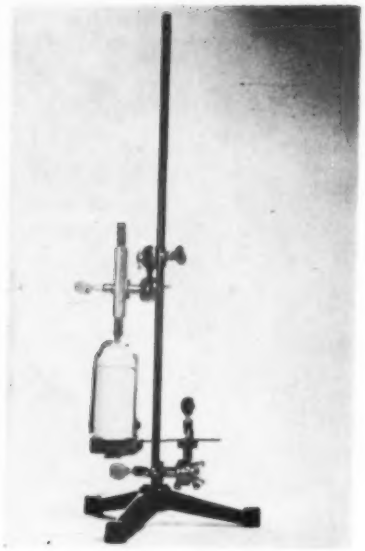


Figure 3
Specially designed holder used in tests.

TABLE I

OBSERVED CHILLING EFFECTS OF PROPELLANTS & PROPELLANT MIXTURES

Genetron Propellant		Temperature Lowering △°F	Genetron Propellant		Temperature Lowering △°F
152a		86	142b/11	(30:70)	58
152a/142b	(70:30)	83	12/114a	(30:70)	58
152a/142b	(50:50)	81			
152a/142b	(30:70)	79	114a/11	(30:70)	55
142b/114a	(70:30)	76	12/142b	(50:50)	55
142b		75			
			12/114a	(50:50)	53
152a/11	(70:30)	74	152a/114a	(70:30)	51
12/152a	(30:70)	74			
			11		50
142b/11	(70:30)	71	12/11	(30:70)	50
142b/114a	(50:50)	69	12/142b	(70:30)	49
114a/11	(70:30)	69			
			152a/114a	(50:50)	47
152a/11	(50:50)	68	12/114a	(70:30)	47
142b/114a	(30:70)	68	12/11	(50:50)	47
142b/11	(50:50)	67	12/11	(70:30)	46
114a		66	152a/114a	(30:70)	45
12/142b	(30:70)	65	12		44
152a/11	(30:70)	64	12/152a	(70:30)	43
12/152a	(50:50)	63			
114a/11	(50:50)	62			

lants or propellant mixtures. Several samples were tested by spraying through a mechanical breakup actuator in order to determine the influence of finer spray on chilling effect.

Results and Discussion

The chilling effects of the various propellants and propellant mixtures are recorded in Table I. These varied from a maximum temperature depression of 86°F to a minimum of 43°F. It is of interest to note that the most commonly used propellants and mixtures exhibit generally lesser cooling tendencies. Propellants 12, 114a, and combinations of 12 with 114a and 11 are in this category.

Some of the propellant combinations listed in the table are unusual ones that probably would not be used in practice. However, they were included in this study to supplement the data on chilling effects of propellant mixtures.

Each temperature lowering listed in Table I is the average of the observed chilling effects of six separate aerosol units. The chilling effects of the individual units in each group of six did not vary from their mean valued by more than 5°F. At least three readings were made for each aerosol unit tested, and these agreed within 3°F.

Factors that contributed to experimental error included fluctuations in room temperature within the range of 70° and 75°F, air-currents, minor deviations in spraying time, and differences in delivery rates of propellants caused by slight variations in the valves.

After the chilling effects of the various propellants had been determined, an attempt was made to correlate them with associated physical properties. These properties include vapor pressure, molecular weight, heat of vaporization, boiling point, and density of the propellants. A correlation of this type, if obtainable, might conceivably lead to a method of mathematically predicting chilling effects. Unfortunately, however, a mathematical procedure based upon the above properties could not be derived from presently available data.

Analysis of the accumulated data for the pure propellants and their mixtures indicated that the chilling effects of the propellants are additive. Therefore, chilling effect of any combination of propellants, except azeotropic or constant-boiling mixtures, can be determined by a simple calculation.

A combination of Genetrons 12/11 in a 30:70 ratio illustrates this mathematical approach. Pure Genetron 12 was found by experiment to cause a temperature drop of 44°F. Thus, in the foregoing mixture, a concentra-

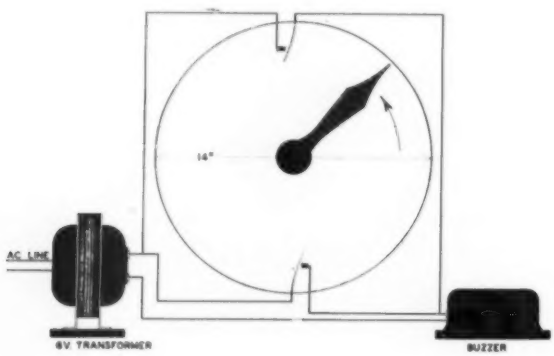


Figure 4
The Timer

tion of 30 per cent Genetron 12 can be expected to contribute a temperature drop equal to 0.30 x 44, or 13.2. A similar calculation for Genetron 11 gives a temperature drop of 0.70 x 50, or 35.0. Genetron 12/11 (30:70), then should cause a temperature drop equal to the sum of the calculated temperature lowerings, or 13.2°F + 35.0°F = 48.2°F. The experimentally determined temperature lowering of this particular propellant mixture is 50°F. This degree of agreement between calculated and experimental values was found to hold for most propellant mixtures tested. Azeotropic mixtures seem to be the only ones that show serious disagreement between observed and calculated values. An example of such a nonconformant mixture is Genetron 12/152a (30:70), a recognized azeotropic mixture.

Simple plots of temperature lowering versus concentration ranges for any two mixed propellants provide a handy alternative to mathematical computation in predicting chilling effects. Figure 5 is an example of this type of graph, which can be constructed as follows: The concentrations of the propellants are plotted on the abscissa and the temperature lowerings are plotted on the ordinate. Reference to Table I shows that Genetron 12 lowers the temperature 44°F and Genetron 11 by 50°F. By connecting these two experimentally determined points with a straight line, the slope is established for directly reading temperature lowerings corresponding to any given propellant mixtures.

As a check on the validity of the method, the experimentally determined values for three different concentration ratios of Genetron 12/11 are plotted on the graph. They obviously approximate the curve, well within the 5° experimental error attributed to the data obtained in this study. It should be mentioned that the type of graph described is valid only in predicting temperature lowerings that can be expected to occur for the same target distance and with the same spray duration used in determining the temperature lowerings for the pure propellants.

The generally good agreement between the experimental and calculated chilling effects suggests that the relationship is more than a coincidence. However, only a limited number of propellant mixtures was tested in this study, and we do not believe that this theoretical method should be accepted as an infallible device for predicting chilling effects. Rather, it is our opinion that it should be used with reservation until tested against considerably more experimental data. Certainly, it is obvious that it cannot be applied when azeotropic mixtures are involved.

TABLE II

INFLUENCE OF DISTANCE FROM TARGET ON CHILLING EFFECT WITH 1.5 SECOND SPRAY TIME

Genetron Propellant	Temperature Lowering, Δ°F		Percent Decrease in Chilling Effect at 6 in.
	4 in. Distance	6 in. Distance	
12	44	22	50
152a	86	46	47
142b	75	46	39
114a	66	61	8
12/114a			
30:70	58	42	28
50:50	53	32	40
70:30	47	25	47
12/11			
30:70	50	48	4
50:50	47	40	15
70:30	46	38	17

In order to evaluate the influence of distance on chilling effect, four of the pure propellants and two mixtures were tested at a distance of six in. from the target with a spraying time of 1.5 seconds. In Table II, the results of these tests are compared with the results obtained at four in.

As would be expected, increase in distance between the valve orifice and the target decreases the chilling effect. The results also indicate that the more volatile the propellant, the more its chilling effect is depressed by an increase in target distance. In support of this conclusion, the percentage loss in chilling effect was computed for each propellant by dividing the difference between the temperature drop at four in. and 6 in., by the drop which occurred at four in. These percentages show that with increased

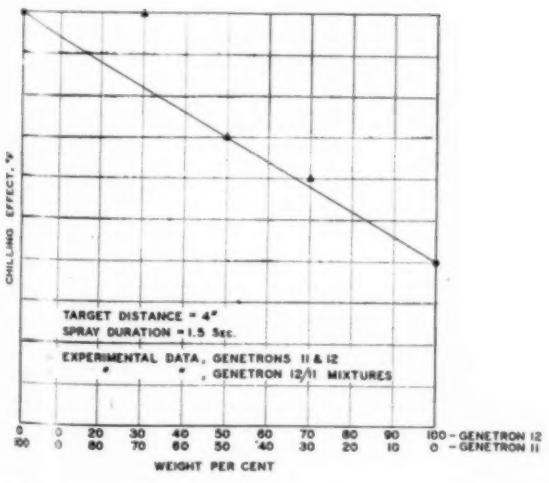

CHILLING EFFECT, °F
TARGET DISTANCE = 4"
SPRAY DURATION = 1.5 Sec.
EXPERIMENTAL DATA, GENETRONS 11 & 12
" " , GENETRON 12/11 MIXTURES
0 0 20 30 40 50 60 70 80 90 100 - GENETRON 12
100 80 70 60 50 40 30 20 10 0 - GENETRON 11
WEIGHT PER CENT

Figure 5

TABLE III

INFLUENCE OF SPRAY TIME DURATION ON CHILLING EFFECT AT 6-INCH TARGET DISTANCE

Genetron Propellant	Temperature Lowering, △°F 1.5 second	3.0 second	Ratio 3.0 sec./1.5 sec.
12	22	34	1.6
152a	46	64	1.4
142b	46	67	1.4
114a	61	83	1.4
12/114a			
30:70	42	55	1.3
50:50	32	48	1.5
70:30	25	35	1.4
12/11			
30:70	48	62	1.3
50:50	40	53	1.3
70:30	38	48	1.3

TABLE IV

OBSERVED CHILLING EFFECTS OF PROPELLANTS IN VARIOUS VEHICLES

Genetron Propellant	Vehicle	Concentration, Wt.% Propellant : Vehicle 30:70	50:50	70:30	Temperature Lowering △°F
152a	Ethanol		X		60
12		X			30
			X		44
				X	50
12/114a	"	X			33
70:30			X		42
	"			X	48
12/11	"	X			29
50:50			X		39
				X	50
152a	Isopropanol		X		51
12			X		42
12/114a	"		X		40
70:30					
12/11	"		X		40
50:50					
152a	Mineral Oil		X		62
12		X			26
			X		39
				X	50
12/114a	"	X			23
70:30			X		35
				X	50
12/11	"	X			19
50:50			X		33
				X	53
152a	Emulsion *		X		55
12		X			20
			X		38
				X	49
12/114a	"				
70:30		X			19
			X		37
				X	46
12/11	"	X			15
50:50			X		32
				X	52

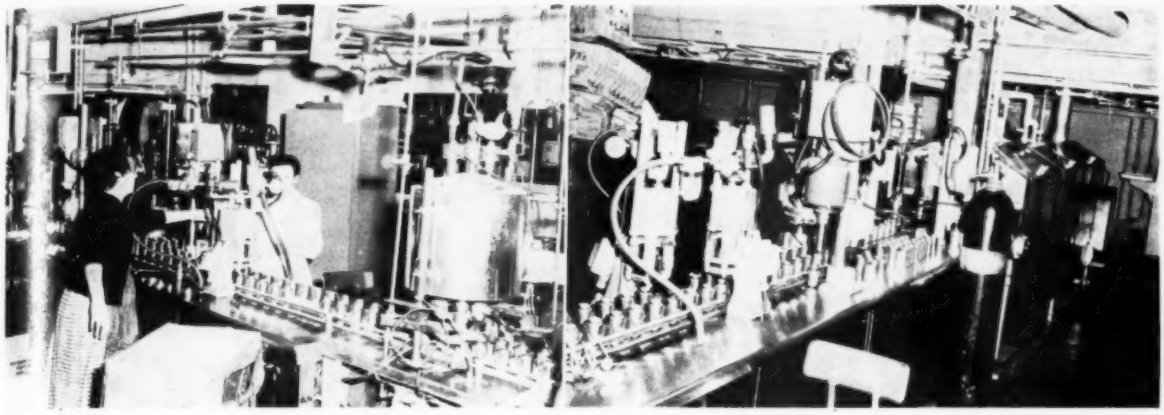
target distance, Genetron 12, the most volatile propellant of those listed in Table II, suffered a 50 per cent reduction in chilling effect; this is the greatest loss in the series. Genetron 114a, on the other hand, which is the least volatile of the propellants listed, showed a reduction in chilling effect of only 8%. The other two propellants, Genetrons 152a and 142b, with intermediate volatilities, fall into their expected places in the pattern. Insofar as the propellant combinations Genetrons 12/11 and 12/114a are concerned, it can readily be seen that an increase in concentration of the more volatile component, Genetron 12, augments the loss in chilling power when target distance is increased.

The effect of spraying time on propellant chilling properties was studied by spraying several of the propellants and propellant combinations for both 1.5 and 3.0 second periods. The target distance used for this comparative testing was six in. rather than four in., because at the shorter distance the propellants of high chilling power would have given readings below the scale of the potentiometer pyrometer. The results of these tests are given in Table III.

The right-hand column of that table lists the ratios of the chilling effect at three seconds to that at 1.5 seconds. Numerical variations among these ratios do not exceed 0.3 for the entire series studied, and if experimental error is taken into account, they can be considered identical. It seems safe to conclude, therefore, that, for the pure propellants and the two combinations studied, the effect of increased spraying time is a constant regardless of the propellant or mixture involved. Whether or not all propellant combinations would behave similarly can be answered only by further experimentation.

A number of the propellants and propellant combinations tested for chilling effect with a regular actuator were also tested with a mechanical breakup actuator. Use of the latter device, at equal spray time and distance, resulted in considerably de-

(*Continued on Page* 111)



Two views of the new stainless steel filling line. During the actual filling operation working personnel are gowned in white aprons and hair nets. At right rear is the heat pasteurizer.

Fluid's New Pharmaceutical Line Located in Separate Plant

A SEPARATE and distinct pharmaceutical facility was put into operation early last month by Fluid Chemical Co., Newark, N. J., one of the country's major custom fillers. In a move rare (if not unique) in the industry, Fluid converted one entire plant, located a long city block away from its main plant, to a sterile and well-conceived pharmaceutical filling line.

With an obvious eye toward the promising future of pharmaceutical aerosols, Fluid management planned the move with the intention of preserving the sterile integrity of a single (and separate) pharmaceutical operation. The plant selected for conversion is the Summer Avenue facility, located along a railroad siding several hundred yards away from the main Mt. Prospect Street plant.

So integral are the facilities at the new installation that it is, in effect, a complete aerosol filling plant—right down to its own laboratory, filling operation, propellant storage and ingredient mixing, and labeling and warehousing. The only resources it will actually share with Fluid's other operations are personnel, IBM raw materials and component inventory, and trucking facilities. All raw materials and finished products will flow directly to and from the plant without ever entering Fluid's main plant.

One of the many unique features of the new plant is a carefully planned inventory of stored ingredients and products, to insure that during the filling operation there will be no truck traffic in and out of the plant. This will obviously necessitate the planning of shipments so that all of the traffic will move after the filling line has been closed down.

Air compressors, and propellant and raw material storage facilities are located in the cellar, well away from the filling operation, laboratory, and filled product storage located on the main floor level. Also in the cellar is a 50-ton refrigeration unit, which can be used for both propellant and product concentrate.

BY FAR the most impressive single feature of the whole plant, however, is the filling line itself. All of the major line components, (ingredient fillers, gassers, crimpers, etc.) are of stainless steel, and the electrical controls have been waterproofed to allow daily washing down of the complete line with alcohol, water, or detergent, (or whatever else the customer might specify for his product). Fittings for the various machines are of Teflon, and special filters have been installed on propellant chargers and ingredient fillers to reduce moisture in critical products. Ingredients will be mixed in three special glass-lined and three other stainless steel tanks (or more properly, kettles).

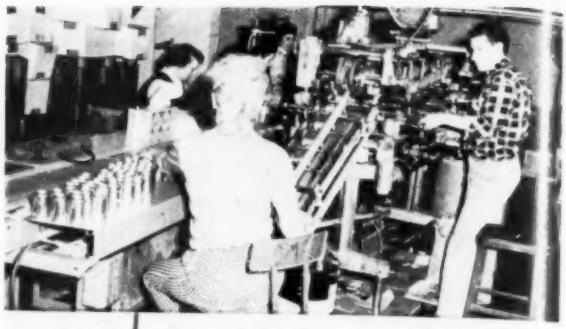
From the standpoint of propellants, the line is highly versatile, since it can fill by the pressure or cold fill method and with conventional liquefied aerosol propellants or with nitrogen and other compressed gases. Also, its container handling equipment has been selected to handle any size aerosol bottle of any material.

In addition to washing and careful traffic control during the time the

line is in operation, other special cleanliness procedures will be observed. For instance, above the filling line Fluid is currently installing sterilizing lamps which will bathe the line in ultra violet and ozone light. In addition, a whole series of other special procedures to insure product sterility have been instituted.

The plant's air-conditioned laboratory, under the direction of David Lora, a graduate pharmacist, will probably be the most complete in any aerosol plant this size. In addition to the usual laboratory test tubes, crimpers, recording data, etc., it will have a gas chromatograph for fine product analysis—plus a highly accurate "Filamatic" vial filler for precision filling of small laboratory units.

Part of the laboratory's function will be strict quality control. Quality control personnel will take a formal weight check of products from the filling line every 15 minutes, and the line personnel will employ a "Shadograph" scale to spot check containers continuously.



The labeling and container handling section of Fluid's new line.

An exterior view of the plant housing the new pharmaceutical line.

Customers' chemists will be permitted access to the laboratory's facilities, and part of the plant's offices are for use of customer representatives who may want to remain in the plant during the filling operation. ★

Crown Develops New Metallic Coating For 8-oz. Container

A new aluminized coating for its standard six-ounce "Spra-tainer" was announced by the Can Division of Crown Cork & Seal Co., Philadelphia, last month. The new coating, which provides a high-gloss luster not previously achieved for mass-produced standard aerosol containers, is expected to go far toward making these conventional tin-plate containers more desirable for luxury product packaging.

This luxury appeal will be a key factor in overcoming the price factor, since the new coating will almost double the cost of the can. Because it provides so luxurious a base, the coating also allows for use of a smaller label or lithograph label design.

The new metallic coating is applied for Crown by a custom applicator, by means of a so-called "Vapolytic" process, which actually involves the exploding of aluminum in a closed vacuum chamber by means of a high-heat tungsten filament. This process is accomplished after the initial precoating has been applied. In the vacuum chamber the cans are mounted on rack spindles and rotated to insure an even all-round coating on the sides and bottom of each container.

From there they are moved on to a spray booth, where a clear or colored lacquer is applied. The final operation involves the re-baking of each container to harden the lacquer.

The finished container has a lasting luster and can be ordered in silver, gold, or in practically any shade of pastel colors. Since most overcaps can be ordered in similar colors, the cap-container color matching will be considerably simplified.

According to Seth R. Schneible, manager of Crown's aerosol product sales, the new coating will offer a high resistance to scratching and to marking by alcohol, detergents, or other product ingredients. It will also resist marring under normal container handling conditions, and shows no sign of the effects of finger marks.★

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Clarke to Max Factor

Appointment of Donald E. Clarke as personnel director of Max Factor & Co. was announced late last month. Mr. Clarke, who will work out of the cosmetic firm's home offices in Hollywood, was formerly a Personnel Supervisor with Collier Carbon and Chemical Corp. of California.

Gibberellin in Aerosols

By David S. Tillotson, Allen B. Reed, Jr., and R. Weiner

Technical Service Department
Pennsalt Chemicals Corp.
Philadelphia, Pa.

GIBBERELLIN, a mixture of several closely related compounds derived from a fungus, has been studied as a plant growth stimulant by industrial, academic, and governmental agricultural scientists for the past several years. It has become available in commercial quantities only recently and is exciting great interest among professional growers and home gardening enthusiasts.

Its effects, at extremely low dosage, are often dramatic. Many plants will change their growth forms, particularly at high gibberellin dosages. A few plants, according to experimental evidence thus far available, are relatively unaffected.

The flowering, budding and seeding of some plants has been accelerated, and increased yields of seed have been reported in several instances.

Believing that a convenient means of applying small accurate doses will prove a valuable assist to home gardeners and professional growers and experimentalists alike, Pennsalt Chemicals Corp. is suggesting your consideration of Isotron aerosols of gibberellin. The compound is reported to lose activity slowly in aqueous solution or dispersion and a non-aqueous formulation is therefore recommended for further evaluation in aerosols.

Formulation work on aerosols in glass and metal containers has been conducted in the technical service laboratories at Pennsalt's research and development laboratories.

The first result of this development program was the presentation of a typical glass bottle gibberellin aerosol at the Chemical Specialties Manufacturers Association in May of 1957. More than 600 samples were given to attending members, following an hour long presentation of technical, marketing and applications information.

Further development studies have been conducted on metal containers in which oven and shelf storage tests were evaluated and contrasted. The methods, materials and evaluations are presented in this paper.

Applications

Gibberellin in plastic coated glass bottles—Gibberellin is being offered in various concentrated forms from which garden sprays can be prepared. These, however, are considerably less convenient than the aerosol method of application.

With the following aerosol the user is able to treat seedlings or very small plants with dosages of less than five micrograms of gibberellin (dependent on the distance of the aerosol from the plant), or may conveniently apply higher dosages with repeated shots from different angles.

The extremely low dosages can be applied through the meter-type aerosol valve with a degree of accuracy not otherwise achieved. More than 500 single applications can thus be made with ease from a single bottle.

A three-ounce bottle with a two-ounce practical fill was prepared accordingly, with the following composition:

		Weight Percent
Gibberellin		0.00625
Tween 20		0.200
SDA #40, anhydrous	q.s.	50.00
Isotron 12/114		50.00
(10/90)		100.00 Aerosol

The popular coleus plant responds to the growth stimulant, gibberellic acid. Plants were photographed when they were eight weeks old. Large Coleus was sprayed at four weeks with 'Gibrel,' the form of gibberellic acid manufactured by Merck & Co. A growth response to the product was noted in one week.

Appendix B

Table of Results of Accelerated Storage Tests of Gibberellin Aerosols
(Testing carried out after 30 days at 130°F.)

Code Number	Wet Wt. Change	% Water in Total Aerosol Initial-due to Conc.	% Water in Total Aerosol Final-after loading & testing	Pressure-Gauge 130°F.	Pressure-Gauge 70°F.	Chloride Test	Appearance of Concentrate	Appearance of Can Interior
1 - 1	Negligible	.024	.043					OK
2	"			68	31	Negative	Slight precipitate	"
3	"			68	30	"	" "	"
4	"			68	30	"	" "	"
2 - 1	"	.076	.091					OK
2	"			66	31	Solution Dark-ened	Slight precipitate-light yellow color	"
3	"			66	30	Negative	Same as above	"
4	"			66	29	Solution Darkened	Same as above	"
3 - 1	"	.026	.035					
2	"			60	28	Negative	Slight Precipitate	Scattered Rust Spots
3	"			60	28	"	" "	" " "
4	"			61	29	"	" "	" " "
4 - 1	"	.072	.096					Several pits-decolorizing
2	"			62	28	Strong pos-itive	Slight precipitate-strong yellow	Gen.pitting & "
3	"			60	26	As above	Slight precipitate-light yellow	General pitting & de-colorizing
4	"			61	26	Slight pos-itive	Same as above	Scattered Rust Spots
5 - 1	"	.034	.034					OK
2	"			60	26	Negative	Slight precipitate	Scattered Rust Spots
3	"			61	29	Slight positive	" "	Several pits-decolorizing
4	"			60	26	Negative	Slight precipitate light yellow	Scattered Rust
6 - 1	Negligible	.080	.077					OK
2	"			60	28	Negative	Slight precipitate	"
3	"			63	29	"	" "	"
4	"			60	29	"	" "	"
7 - 1	"	.13	.137					OK
2	"			57	27	Negative	Sl.precipitate-very light yellow	"
3	"			62	29	Solu.darkened	Same as above	"
4	"			60	29	" "	Sl.precipitate-light yellow	"
8 - 1	"	.078	.110					Scattered Rust Spots-de-colorized
2	"			58	28	Solu.darkened	Sl.precipitate-very light yellow	Scattered Rust Spots
3	"			60	28	" "	Same as above	Scattered Rust Spots
4	"			60	28	Sl.positive	Same as above	Scattered Rust Spots
9 - 1	"	.056	.038					OK
2	"			60	27	Negative	Slight precipitate	"
3	"			60	29	Negative	Slight precipitate	"
4				60	29	Negative	Slight precipitate	"
10- 1	"	.028	.039					Scattered Rust Spots
2	"			74	36	Sl. positive	Slight precipitate	Scattered Rust Spots
3	"			80	37	Strong pos.	Sl.prec.-V.lt.yellow	Pitting & Decolorized
4	"			60	26	Negative	Slight precipitate	Scattered Rust Spots
11- 1	"	.080	.103					Scattered Rust Spots - decolorized
2	"			80	40	Strong pos.	Sl.prec.-yellow color	General pitting & de-colorizing
3	"			60	27	Strong pos.	Sl.prec.-yellow color	Several pits & decolor-ized
4	"			60	27	Negative	Sl.prec.-V.lt.yellow	Scattered Rust Spots
12- 1	Negligible	.078	.094					OK
2	"			60	28	Negative	Sl.prec.-V.lt.yellow	"
3				60	29	"	" " " " "	"
4				60	30	"	" " " " "	"
13- 1	"	.080	.110					Gen.pitting & decolorized
2	"			62	29	Sl.positive	Sl.prec.-strong yellow	" " " "
3	"			58	26	" "	Slight precipitate	OK
4	"			60	26	Negative	" "	Several pits-decolorized
14- 1	"	.13	.136					Gen.pitting-decolorized
2	"			60	27	Solu.darkened	Sl.prec.-V.lt.yellow	Rusting at seam
3	"			59	26	Negative	" " " " "	OK
4	"			60	27	Solu.darkened	" " " " "	OK
15- 1	"	.056	.083					OK
2	"			59	27	Sl.positive	Slight Precipitate	"
3	"			58	26	" "	" "	"
4				59	25	Solu.darkened	" "	Decolorized
16- 1	"	.078	.108					Several pits-decolorized
2	"			60	28	Strong pos.	Sl.prec.-yellow color	" " "
3				60	27	Strong pos.	" " " "	Gen.pitting-decolorized
4	"			60	27	Strong pos.	" " " "	" " "

With a meter valve attached, each burst or spray projected the following weight of material in approximately 100 milligrams of the liquid:

	Weight
ibberellin	5 micrograms (active level)
ween 20	200 micrograms
DA #40, anhydrous	50 micrograms (approximately)
otron 12/114	50 milligrams

ince growth responses have been re orted at the application range of 5-) micrograms of gibberellin, the va ie of the control achieved through th use of the aerosol described beco es apparent. Multiple doses will fil higher application requirements on different areas of the same plant thus avoiding potential burning due to the carrier solvent. There is little chance that the propellant amount used in each spray will cause chilling to a plant surface when sprayed properly. A reduction of ethanol content may prove more satisfactory for extremely delicate and young plants.

The choice of a glass container and propellants 12 and 114 reduces to a minimum the corrosion probabilities, especially if the moisture content is kept to a minimum.

Gibberellin in metal containers—Following the glass bottle formulation and with the interest developing rapidly on further merchandising, it was believed that an evaluation program was needed for metal containers to satisfy numerous inquiries concerning gibberellin.

The object of this test series was to prepare gibberellin aerosol packages and to test for stability of the formula and package at 130° F. for one month and also for one year at room temperature.

A series of gibberellin formulas were evaluated in lined containers with Isotron propellants and aerosol valves. Filling of the aerosols in the Isotron technical service laboratory was performed with a cold-fill technique. Complete formulations are listed in Appendix A. The results of the oven test are listed in Appendix B; the results of the shelf test are noted in Appendix C.

APPENDIX A

GIBBERELLIN AEROSOL FORMULATIONS

Type A

Ingredients	*Formula Numbers* 1	2	(Cencentrations in Weight Percent)
Gibberellin	0.00625	0.00625	
Tween 20	0.2	2.0	
Soltrol 170	——	——	
SDA #40, anhydrous	q.s. 20.0	q.s. 20.0	
Isotron 12/114 (25/75)	80.0	80.0	

Type B

Ingredients	*Formula Numbers* 5	8	3,10	4,11
Gibberellin	0.00625	0.00625	0.00625	0.00625
Tween 20	0.2	2.0	0.2	2.0
Soltrol 170	——	——	0.34	0.34
SDA #40, anhy.	q.s. 20.0	q.s. 20.0	q.s. 20.0	q.s. 20.0
Isotron 12/11 (50/50)	80.0	80.0	80.0	80.0

Type C

Ingredients	*Formula Numbers* 6	7	9	12
Gibberellin	0.00625	0.00625	0.00625	0.00625
Tween 20	0.2	2.0	0.2	2.0
Soltrol 170	——	——	0.34	0.34
Isopropanol 99	q.s. 20.0	q.s. 20.0	q.s. 20.0	q.s. 20.0
Isotron 12/114 (25/75)	80.0	80.0	80.0	80.0

Type D

Ingredients	*Formula Numbers* 13	14	15	16
Gibberellin	0.00625	0.00625	0.00625	0.00625
Tween 20	0.2	2.0	0.2	2.0
Soltrol 170	——	——	0.34	0.34
Isopropanol 99	q.s. 20.0	q.s. 20.0	q.s. 20.0	q.s. 20.0
Isotron 12/11 (50/50)	80.0	80.0	80.0	80.0

Conclusions

The Oven Test—The most critical factor in the formulation is the choice of propellant. No corrosion was found in the containers using propellants 12 and 114 in combination. Some corrosion or can lining failure was found in all containers using the combination of propellants 12 and 11. There is evidence that the higher concentration of Tween 20 and higher moisture levels tended to increase corrosion of the containers.

It is therefore advisable, considering oven test data only, that Isotron 12 and Isotron 114 should be used as aerosol propellants for this product for maximum corrosion resistance.

For economic reasons, however, users may wish to use propellants 12 and 11. Therefore, the surfactant level should not exceed 0.2% and the moisture level should be kept to a minimum.

Further evaluation, based on shelf tests will modify the above conclusions and recommendations on formulations and packages.

The Shelf Test—The shelf test series were identical with the oven test series, with the exception that plain tin plated containers were included with the lacquer lined containers. After one year's storage under ambient conditions all of the cans were opened for examination.

In general, the test results are less definitive than those obtained in the accelerated tests. The can corrosion

(*Continued on Page* 105)

MAD *looks at* Aerosol Filling

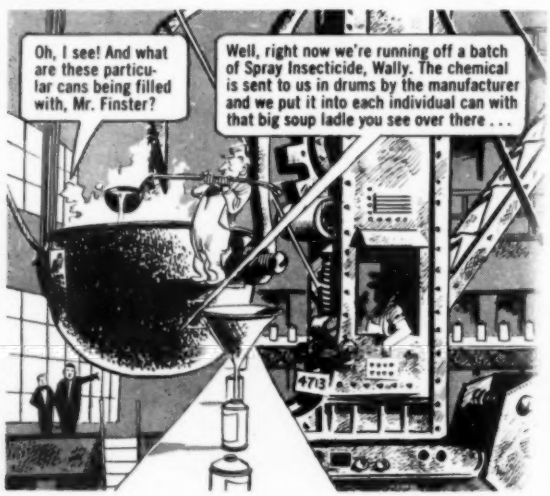
With kind permission of the editors of *Mad*, leading humor magazine, *Aerosol Age* presents the Bob and Ray "Pressure Can Report," as it appears in the June issue of *Mad*:

"Noting the recent trend on the part of manufacturers to put their products, no matter what they may be, into push-button pressure cans, *Mad* assigned Bob & Ray's ace roving correspondent, Wally Ballew, to investigate the behind-the-scenes story of this new packaging fad. So let's go out to the Blasst Pressure Can Co. in Rumney, Vermont . . .

This is charming and talented Wally Ballew, four-time-winner of the "Elkart P. Loftus Award for Unimpressive Reporting," speaking to you direct from the "Filling Room" of the Blasst Pressure Can Company here in Rumney. And beside me is the president of the Blasst organization, Mr. Fenwick J. Finster. Tell me, Mr. Finster, just what goes on here in the "Filling Room"?
The little red button goes on here, Mr. Ballew!
COMPANY TIME
EST TIME
MORT DRUCKER

PICTURES BY MORT DRUCKER

I . . . I beg your pardon?
You know . . . the little red button you press to squirt the stuff out of the can? Well, after the can is filled and pressurized, that little red button goes on here in this room!


Oh, I see! And what are these particular cans being filled with, Mr. Finster?
Well, right now we're running off a batch of Spray Insecticide, Wally. The chemical is sent to us in drums by the manufacturer and we put it into each individual can with that big soup ladle you see over there . . .
4713

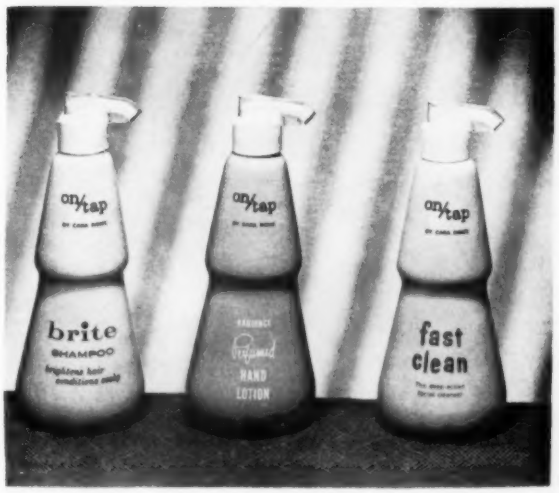
Then the top is screwed onto the can, and it goes over there to the compression department . . .
You mean where those hundred or so men are lined up, working . . .
That's right, Wally! They're called "The Blowers"! Each man attaches what looks like that straw to each can, and then he blows into it for all he's worth. When he can't get any more breath into it, he holds his finger over the hole, and slips one of those little red buttons onto it!
That's amazing! I was always under the impression that some kind of big **machine** shot gas into the can!
No . . . it's all done by my boys! They're a great bunch! They love to work under **pressure**! Heh-heh! That's a little joke we tell around here . . .
Yes, that's very funny! But tell me, Mr. Finster . . . Don't they get dizzy and headachey from blowing air into those cans all day long?
They did at first, but they all have lungs like elephants now! Take Eddie Zitzlaff, for instance . . . the third one from the left! He's our champion blower!
INSTANT SCOTCH
On his day off, he blows up Navy blimps . . . just to keep in trim!
I see! Do you ever get any complaints on your pressure cans from consumers, Mr. Finster?
Oh, we did at first! Folks would complain about strange smells coming from our cans. But we traced it to some of our boys who had eaten garlic or onions before they came to work! Now we make everybody **gargle** before they start!
PERFECT ACCIDENT RECORD
12 DEAD
4 SEC.B

Tell me, Mr. Finster . . . what are some of the newer products being put into pressure cans these days?
Well, most of them are top secret . . . competition, you know! But here are a few I can let you see! This one is called "Hamburg-o-sol" . . .
You just squirt some of this finely-chopped meat into a skillet, and . . . presto! INSTANT HAMBURGER!
And here's a can of "Instant Spaghetti"! It comes out in one continuous noodle! You merely snip it off at the desired lengths!
SUGGESTION BOX
And here's one of the latest products . . "Instant Air" . . . for fixing flat tires!
Whew! That "Instant Air" has quite an aroma!
All right! Who's the wise guy?! Who's been chewin' "Sen-Sen" on the job?
And now, this is Wally Ballew . . .
Pack up your things, and . . . blow!
. . . sending it back to MAD Magazine in New York!
LARGE SIZE SEN SEN 25¢

(Reprinted with permission of the editors of MAD)

Regent nail polish remover in aerosol form has been introduced by the Aerosol Corp. of the South, Arlington, Tenn. in five and 15-ounce Continental Can containers with Precision valves. The nitrogen-powered product is being marketed to beauty salons all over the U. S.

White Enchantment cologne spray is a new product of Continental Perfumes, New York. Filled by Old Empire, Inc., Newark custom filler, it has a Precision valve and an overcap in gold by Gilbert Plastics.

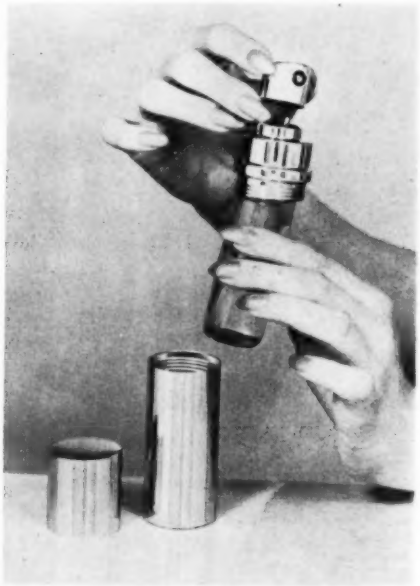


On Tap "brite" shampoo, perfumed hand lotion, and facial cleanser, will be marketed by the Rexall Drug Co. as additions to its Cara Nome line. All three are in new brightly colored plastic-coated glass bottles by Owens-Illinois Glass Co.

Duraclean foam and spray spot removers have been introduced in Crown "Spratainers". These products mark Duraclean's entry into the consumer field, the company previously having distributed only to its dealers (who clean upholstery and large drapery type items).

NEW PRODUCTS AND PACKAGES

One of the most comprehensive television campaigns ever used to introduce a new aerosol product has been used for **Pam Dry Fry,** a new product of Pam Industries, Chicago. Griddle and frying pan spray product is being packaged by G. Barr & Co., Chicago, in a 12-ounce Crown "Spra-tainer".



A new refillable aerosol cologne dispenser, consisting of a styled metal outer case and a replaceable inner glass bottle has been introduced by The Risdon Manufacturing Co., Naugatuck, Conn. Called the **Vaniti-Mist,** it comes in one and two-ounce sizes, and can be equipped with metering or non-metering valves. Container has eight parts: cap, three-section outer case, plastic-coated glass bottle, valve assembly, actuator, and a rubber pad on which the inner bottle rests.

Summer Shower Cologne spray mist is a new product of Prince Matchabelli, Inc., New York. The packaging, new for this summer, features raindrops on a cool aqua background.

Aeromagic, a new retail line of aerosol products has been introduced by General Aerosols, Inc., newly-formed affiliate of Reed Research, Shelton, Conn. The line so far includes "Rid-O-Dust", an anti-dust spray, "Ring-Away, an enamel, porcelain cleaner, and "Push Button Starch", first such product introduced in the U.S.

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Delrin Acetal Resin...

new container material

By J. N. Owens

Plastic Sales Division, Polychemicals Dept.
E. I. du Pont de Nemours & Co.
Wilmington, Del.

Conclusion of a two-part article

THIS section of the article will show the package designer and the package engineering section the effect of aerosol container design on economy. Designs requiring minimum wall thickness are shown to permit lower molding cost as well as save material cost. Advantages are discussed for: circular rather than oval or square cross-sections, for minimum diameter variations from top to bottom, for tall rather than short containers, and for small diameters rather than large diameters at the base.

Efficient design saves material cost and may also reduce molding cost. A typical selling price of a four-ounce Boston round polyethylene squeeze bottle weighing 17 grams and having a wall thickness of 0.047″ was, in the recent past, 4.7 cents each in quantity. The polyethylene material itself represented 1.3 cents each, and part of the remaining 3.4 cents was molding cost and profit on invested capital. If efficient design permits, it is possible to reduce both these factors by use of thinner walls. Not only is material cost reduced but production rates are better for the thinner wall design, thus allowing greater production per unit investment. This means lower molding cost and lower investment for a given production. An example of the effect of thinner walls was given recently, where the cooling portion of the cycle was reduced better than 50 per cent in going from a 0.060″ to a 0.040″ wall for bottles blown from 0.950 density linear polyethylene.[6] The cooling cycle was designated[7] as one-half (ten seconds) of the total 20 second cycle per mold for the previously mentioned four-ounce blown Boston round bottle weighing 17 grams in polyethylene. Therefore, a 50% reduction in cooling cycle would indicate the possibility of at least 25% reduction in total cycle. Hence, attention to efficient, practical design can pay good dividends. The importance of efficient design applies to injection molding as well as to blow molding. SPE technical papers reveal amazingly fast production rates for thin wall packaging applications through the use of newly designed, ultra-fast injection molding equipment.

The matter of achieving efficient design is discussed here with the traditional cylindrical shape container in mind, although a spherical container could be one-third more efficient (Figure 3a).

For maximum economy, circular cross-sections and minimum diameter variations are needed. In going from circular cross-sections to oval to square cross-sections, much heavier walls must be used to resist bending.

Large variations in diameter from top to bottom often result in less efficient material use, because of limitations in making the wall thickness everywhere proportional to diameter.

Figure 3a illustrates the beneficial effect of small diameters on material requirements for cylinders. The section following this one gives the basis for Figure 3a, with sample design calculations. About the same amount of "Delrin" is needed for the side wall of a cylindrical aerosol bottle to contain a given volume regardless of the diameter (see equations (1), (4), and (5) of Appendix C). However, the amount of "Delrin" required to close off the top and bottom of the cylinder increases considerably with increasing diameter. This results in the sharp rise in the curves seen on Figure 3a, as the diameter increases. The curves also show that not much is gained by reducing diameter below a certain amount, since the curves flatten out appreciably as the diameter approaches zero. For example, there is little material economy, for a two-ounce container, in reducing the diameter to less than three quarters of an inch. In addition, Figure 3b shows that such a container would be about eight inches tall. Figures 3a and 3b should help the package designer to determine an economical and practical size relationship.

Smaller diameters at the bottom of containers reduce the tendency for the bottom to bulge under pressure. For a dished bottom, (such as appear on

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most aerosol metal cans) the tendency to bulge is directly proportional to the square of the radius of curvature and inversely proportional to the square of the thickness.[8] Smaller diameters permit the use of a reduced radius of curvature and a thinner bottom section. Since an injection molded container can avoid bulging of a common dished-in bottom by using a dished out bottom projected skirt, these considerations of small diameters apply especially to bottles made by any blow molding process which does not control bottom thickness. Laboratory blown four-ounce Boston round bottles of "Delrin" have performed satisfactorily with only a slight dish. However, there is a limit. A rib across the bottom can be made in most blow molding processes by die design of the tube pinch off, to stiffen the bottom dish.

APPENDIX C

Calculate: Grams "Delrin" needed in an ideal cylindrical container, as a function of total volume and of diameter.

Assume: 1. Side wall thickness needed is determined by Barlow's formula for hoop stress.

2. Bottom is an inverted spherical dish, the thickness being determined to prevent collapse, or bulging out the bottom, by an equation for shallow spherical domes[9], and the bottom is considered as having fixed edges without penalty of using extra material.

3. Top and neck require the same amount of "Delrin" as the bottom requires. While this is only approximately true, it will not materially affect conclusions.

4. A safety factor of two is used, in conjunction with more applicable stress and modulus data than standard A.S.T.M. short term tests provide. The stress chosen is 4,000 psi, obtained from a Larson-Miller type correlation of time to burst data on pressured bottles at various temperatures. The modulus chosen is 100,000 psi, based on long-term creep and stress relaxation type tests which in effect downgrade the normal 400,000 psi modulus for "Delrin" because of long-term loading, higher than room temperature, and slight plasticization by water or ethyl alcohol. These values allow for the combinations of one week at 130°F., or one month at 110°F., or one year at 73°F. A pressure of 82 psig. is assumed, to cover the maximum pressure of a "Freon" propellent aerosol formulation at about 130°F. This in itself is somewhat of a safety factor.

Calculations:

Vp is the sum of the volume of plastic needed to form the side wall and twice the

(*Continued on Page* 118)

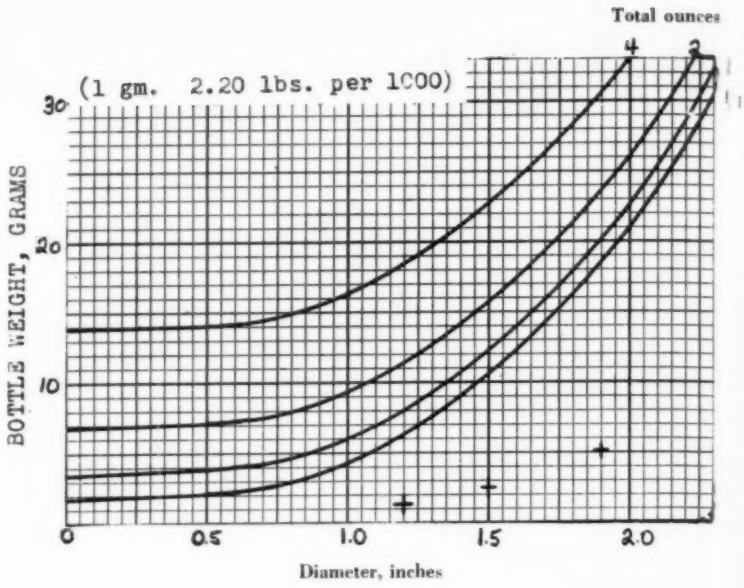

Fig. 3a

Curves show that larger diameters increase the bottle weight appreciably for cylindrical containers of any size. Note that ideal spherical containers (+) of one-half, one, and two-ounce capacity require almost one-third less bottle weight than the most efficient corresponding cylindrical container.

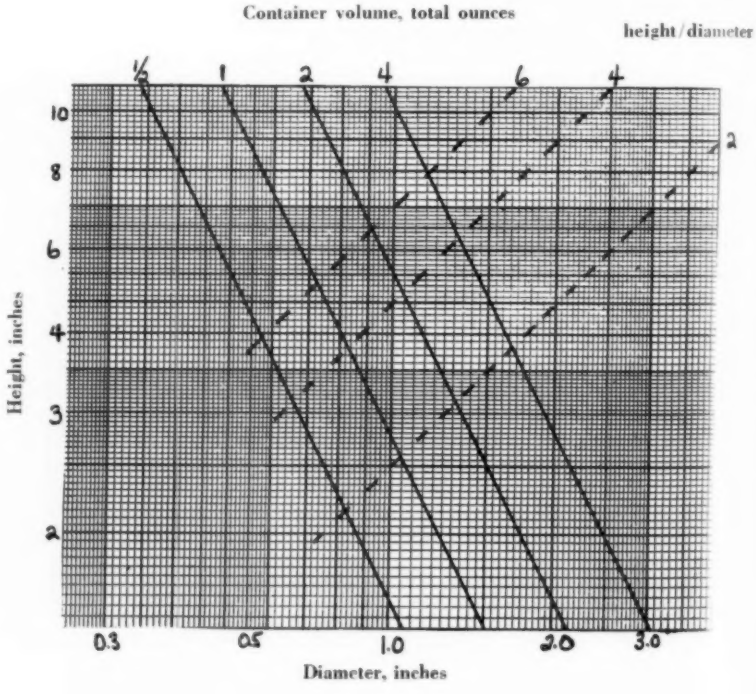

Fig. 3b

Height and diameter are related to ounce capacity for cylindrical containers. This helps to determine practical size relationship.

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Battelle Completes Two Studies Related to Aerosols

SCIENTISTS at Battelle Memorial Institute, Columbus, Ohio, last month reported on two separate studies which could have some long-range effects on the aerosol industry. The first of these was a study to determine the effects of the physical and biological properties of aerosols (in its original meaning of a suspension of foreign matter in the air) resulting from transporting these aerosols through many feet of duct. The second is a study of the relation between physical properties of substances and their effect on the human sense of smell.

The first of these projects was sponsored by the U. S. Army Chemical Corps Laboratories at Fort Detrick, Md., in an effort to increase efficiency in the assessment of biological aerosols. The research was accomplished by a team of engineers, biologists, and statisticians, with Dr. J. Mason Pilcher in charge.

Though the data collected in the course of this study is aimed at more effective use of biological aerosol generation at Fort Detrick (for biological warfare) its conclusions about the transportation of aerosol particles could be of use in future aerosol pharmaceutical developments, particularly with inhalation and other internally absorbed aerosols.

In the Battelle studies, dibutyl phthalate aerosols were moved through a nine-inch-square duct 45 feet long at transport velocities of 8.8, 88, 440, and 880 feet per minute. The aerosol particles ranged in size from 1 to 25 microns in diameter and were tagged with 1% Rhodamine-B dye.

The physical studies showed that, for aerosol particles 12 microns in diameter and smaller, 80% or more were transported over a distance of 30 feet in the nine-inch-square duct at 880 feet per minute. Approximately 80% of the aerosol particles less than 10 microns in diameter were transported 30 feet at 440 feet per minute. At 88 feet per minute, approximately 80% of the 5-micron particles were transported 30 feet. For aerosol particles 25 microns in diameter, 10 to 50% were transported 30 feet at 880 per minute.

THE other study was undertaken to help the Army Quartermaster Corps provide tastier rations for the armed forces, through an investigation of the relation between physical properties of substances and their effect on the human sense of smell. The research is being done for the Quartermaster Food and Container Institute for the Armed Forces, a unit of the Quartermaster Corps' Research and Engineering Command.

"We know a great deal about other senses, such as vision and hearing," declared Dr. Howard G. Schutz, a Battelle psychologist. "Much less is known about the sense of smell. The current research project is now at a stage where we can study the physical properties of a substance chosen at random and accurately predict the

(*Continued on Page* 118)

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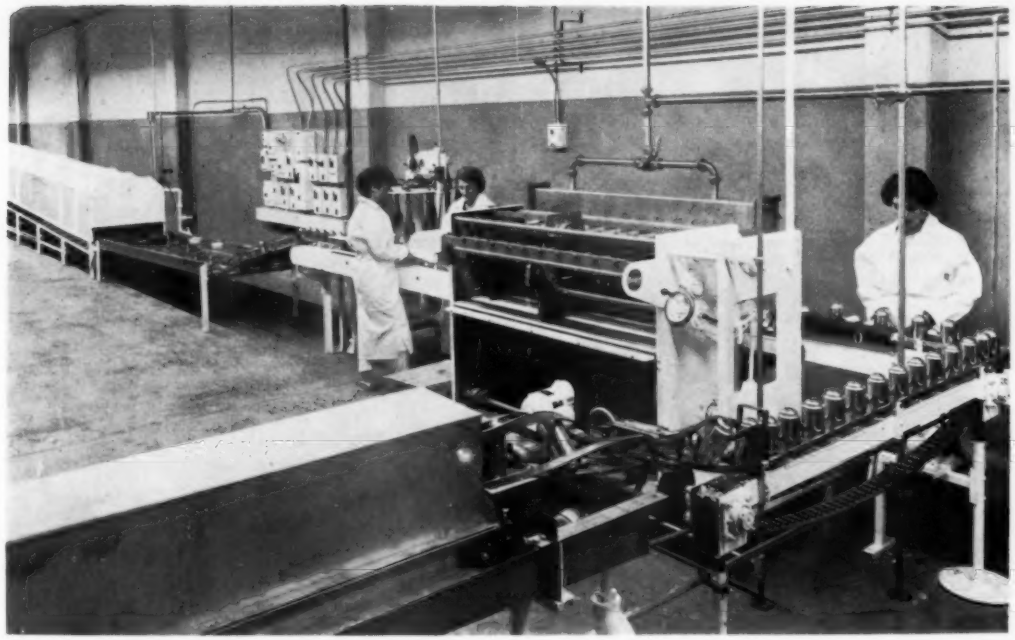

Western Filling's food line, the first such in the industry.

Custom Aerosol Filling for Food Products*

By Clarence P. Clapp
Western Filling Corp.
Los Angeles, Calif.

I FIND the subject of "Food Aerosol Custom Filling" a rather perplexing topic to cover adequately because it represents such a broad field. It seems to me that we are concerned with the actual functions of the food aerosol custom filler, what they have been, what they now are, what they will probably be, and why.

First of all, let us define what the food field encompasses from the filler's point of view. In other words, where do you draw the line between a food and a nonfood item insofar as as a facility is concerned. A food product is generally considered to be any material introduced into the body for the purpose of nourishment. From the filler's point of view, we may add this "for the purpose of nourishment and sustenance of life and health." This actually includes medicines, vitamins and drugs, since they will all be ultimately consumed internally by human beings. As a result, the manufacture and sale of such items will be strictly regulated at federal, state and local levels by inspection of facilities and chemical and bacteriological analysis of completed products, to protect the consumer.

Next, when do these packages become pressurized or aerosol products as we know them today? In my opinion, it is an aerosol product when the pressure is utilized as a functional part of the design. Thus, a seltzer bottle would definitely be considered in the aerosol category. Regular soft drinks, beer and so forth are not aerosol products, but could be considered aerosols if they were equipped with valves to dispense the contents by pressure as desired.

The basic components of an aerosol or pressurized food are four:

1. A gastight container designed for pressure
2. Nontoxic propellant gases
3. A valve mechanism
4. The ingredients

To make these have commercial value, we need two more essentials:

1. A manufacturer or filler
2. A merchandiser

It is not coincidence that these requirements are similar to those of nonfood aerosol products.

DURING the birth and expansion of the aerosol industry the custom filler concentrated on nonfood products. This group of products has been primarily responsible for the spectacular growth familiar to everyone. Please don't misinterpret that statement; merchandisers and suppliers of the basic components made it all possible. Until a couple of years ago, food aerosols had quite a different history. Until then, their application was limited primarily to whipped toppings because of technical problems and perhaps lack of research in that field. The full potential of aerosol foods was not fully appreciated until a pressurized liquid soft drink concentrate was marketed, and subse-

*Paper presented during 45th annual meeting, Chemical Specialties Manufacturers Assn., New York, Dec. 10, 1958.

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quently a spray barbecue sauce. This barbecue sauce was the combined effort of Anderson Foods, a division of Leublein Inc. and Western Filling Co., a food aerosol custom filler. A host of other suppliers co-operated to make "Sizzl Spray" a reality. These developments meant essentially that aerosol dispensing was now applicable not only for foam products, but for sprays and liquids as well. Aerosols offer the ultimate in convenience to the consumer.

The strength of the custom filler, food or otherwise, centers around his ability to create and develop new products and to produce large quantities of material economically at the quality level necessary to maintain commercial acceptance of the products. The pressurized or aerosol food presents to industry a challenge and potential second to none. New methods of food finishing and handling, loading, and testing are being devised. The facilities of the custom filler must indeed be remarkably versatile and substantial to cope with the pressurized or aerosol food field generally. Certain products require refrigerated conditions during manufacture. Other products may be blended simply, while still others may require cooking for several hours. Filling and gassing conditions will vary likewise. depending on the bacteriological aspects and the physical characteristics of the gas and product.

A premarketing checklist for pressurized or aerosol food has been prepared by CSMA*. This basically lists only headings of characteristics that must be carefully tested prior to production or marketing in this field—and it is nine pages long. Many of these tests require experienced aerosol technology; many others require experience in food technology. A lack of either can far too easily prove disastrous.

With the newness of this field today the custom filler must provide complete services along with active sales campaigns to demonstrate to merchandising food people the facts and potential of food aerosols. He must have the facilities and personnel to perform and a willingness to co-operate with suppliers and food companies alike, for the problems can easily be too vast for one to handle. He must be prepared to meet high production demands on short notice with positive and unwavering quality control. Costs must likewise be carefully controlled to avoid pricing above the volume market.

Let us follow a pressurized food product from its creation as an idea to the finished item on the shelf of the neighborhood market. Let us assume that it is a spray barbecue sauce. I picked this product by familiarity and not by accident. It was conceived that spraying would be an ideal method of application for a barbecue sauce and would eliminate the rather messy conventional operation involving brushes, breakable bottles, etc. that goes with barbecuing. The basic type, color and flavor desired were first determined by careful evaluation of existing products along with experience in related fields. The can company and filler were contacted and various ideas were discussed as to how this product might be modified for spray packing. The first requirement was a suitable container and valve to withstand any corrosion that might be encountered (with proper solubility and other physical characteristics) to dispense the product under all conditions of use. A valve had to be obtained with proper functional characteristics to yield a spray of the desired dimensions and delivery control. The bacteriological characteristics had to be evaluated to determine safe packaging procedures that would positively eliminate bacterial spoilage.

The formulation was prepared in the filler's laboratory and methods of reducing the particle size to a consistent and uniform value was painstakingly arrived at by trial and error. All types of conventional food finishing equipment were procured, tested, and eliminated one by one as unsatisfactory because of inconsistencies, excessive waste, or inability to yield the proper product. It was eventually determined that a special machine had to be designed and built for this job.

In arriving at a suitable valve, it was found, again by trial and error, that available valves would not dispense the product at the necessary viscosity. A valve was modified and a spray head designed, by trial and error, that gave the desired delivery. Many tests were made to insure freedom from clogging, minimization of product retention and adequate residual pressures. Color, flavor and application tests were made by gourmets to be sure the finishing and heat treating did not alter the product from that which was desired.

In the meantime, test containers were being manufactured by the can company with all the possible variables for study of corrosion and shelf life testing. These were packed and placed in storage under various conditions at all laboratories. Packs were also made and innoculated with specially prepared mixtures of bacteria at various points along the production line to determine the resistance of the product to spoilage and the adequacy of the packing procedure. Very careful evaluation was made of the toxic bacterial problem which must necessarily be a primary consideration. Once the methods of product preparation and filling were established, it was necessary to duplicate the operation on a production basis. A suitable manufacturing area was selected after consultation with local health authorities to insure conformance with all requirements. Complete facilities were then assembled for production of the product.

Quality control tests were set up to insure uniformity in the final manufacture; solids, pH, viscosity, color and flavor limits were established. Filling times, temperatures and vacuums, gassing times, temperatures and pressures, weight control, along with esthetic characteristics, were standardized. Inspection of raw materials and parts was necessarily controlled.

After all of this work and effort, one question remained unanswered, the key question above all: Would the product sell? This question was an-

(*Continued on Page* 125)

* The check list appeared in the April issue of *Aerosol Age* (page 28).

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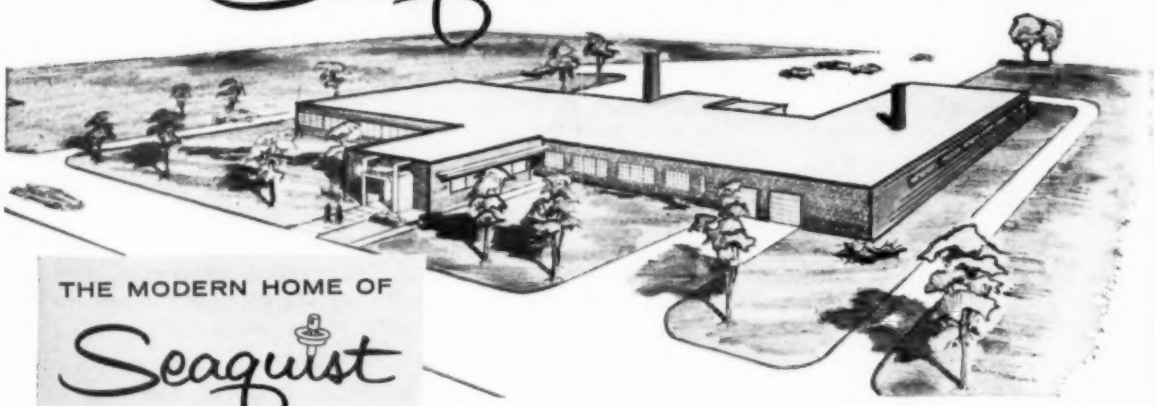

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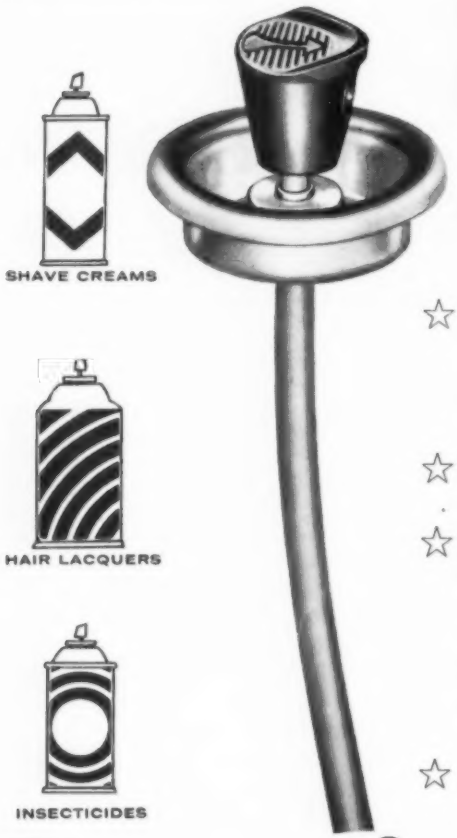

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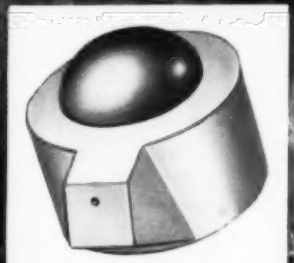

1948

QUALITY AEROSOL VALVES SINCE 1948

WHETHER the perfumer's nose or the analytical instrument used by the analytical chemist will dominate future perfume manufacture and evaluation was the principal issue discussed at the fifth annual

unexpected controversy over role of analytical instrument stirs up yearly meeting of American Perfumers

Perfumers Society Meets in New York

symposium of the American Society of Perfumers late last month. The "open" symposium, held at New York's Essex House on April 20, was attended by more than 300 perfume and finished product researchers and technicians.

The battle lines in the discussion were drawn between E. Fearns, of the analytical department of van Ameringen-Haebler; V. D. Johnston, chief analytical chemist of Givaudan-Delawanna; and Dr. F. Lohman, of Procter and Gamble; (all of whom seemed to advocate the strengths of the analytical chemist against the possible shortcomings of the perfumer's nose) and Dr. J. S. Jellinek, perfumer of Polak's Frutal Works; and H. Cuttler, perfumer of Revlon; who put themselves in the other camp. A. L. van Ameringen, president of van Ameringen-Haebler, who acted as an interpreter and who presided at the question-and-answer period, pointed out several times that the two sides in the discussion were not as far away from each other's position as they seemed.

Mr. Cuttler, who drew the greatest audience applause, acknowledged that the instrument which was the subject of the discussion has provided a means by which the cosmetic chemist can work closer with the perfumer on routine physical and chemical procedures. He charged, however, that the art of perfumery is being limited on all sides by the chemist. "The perfumer," he declared, "has to rely on his nose *regardless* of what the instruments show. This is proven by the fact that some of the greatest perfume accomplishments have been carried out with adulterated base materials which would not pass instrument evaluation."

Purity itself should therefore never become the sole criterion of a perfume material, he declared, nor should physical analytical methods be placed on any type of a special altar. One major factor that enters into any evaluation of the issue, he suggested, is the fact that "all materials which are derived from natural sources are bound to vary from year to year because of varying climatic conditions."

Mr. Cuttler suggested that analytical instruments always be used with special intelligence, "since there is no machine that can tell whether 'lift' and other special attractions can be attributed to any certain combination of perfume materials." No machine has or will be devised, he declared, which can replace the perfumer's nose.

DR. JELLINEK, a perfumer with a wide reputation in Europe, took a less extreme position than did Mr. Cuttler. Admitting that quality control by use of instruments has proven an invaluable tool for the perfumer, he pointed out that chemical purity (as measured by instruments) is not necessarily the same thing as olfactory analysis, nor can one be used to actually replace the other. Citing instances in which the nose and instrument were completely "out of tune," he declared emphatically that high chemical purity and a satisfactory odor are not necessarily linked together.

"The basic issue here seems to be which is the ultimate authority, the perfumer's nose or the analytical instrument. Analytical chemists point out that the perfumer's olfactory senses are not foolproof because of the following three factors:

1. He must judge the entire impact of the scent at once.
2. Inconsistencies are bound to arise because of personal preference or some temporary conditions.
3. The perfumer's judgment provides no permanent record from year to year, or even from day to day.

Dr. Jellinek suggested that in the foreseeable future the perfume industry could be divided into two distinct schools of thought:

1. The users (marketers) of mass products, who he said might come to rely more and more on instruments to evaluate perfumes used in their products.

(*Continued on Page* 119)

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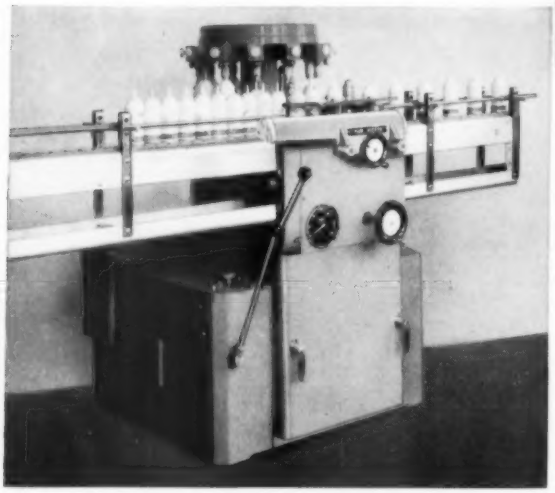

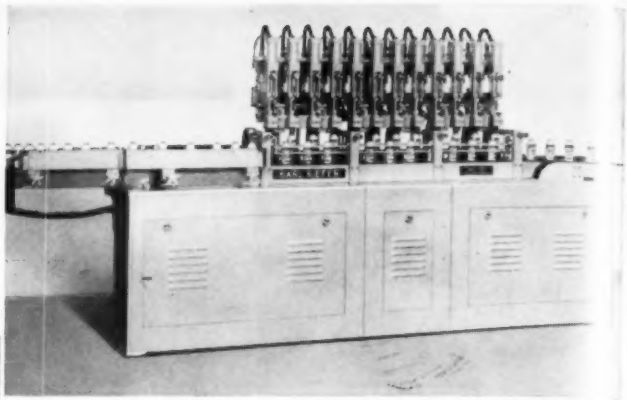

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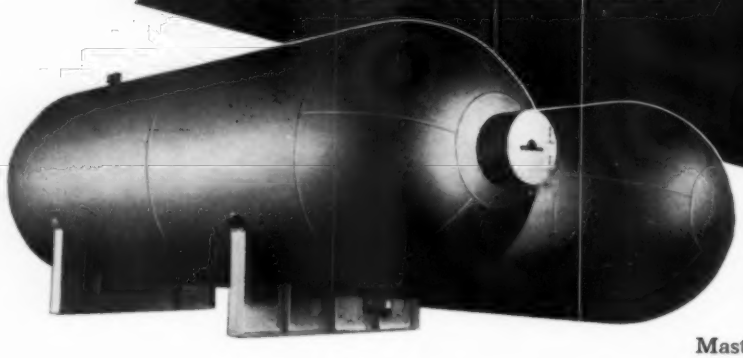

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A New Method of Increasing Compatibility and Decreasing Pressure in Aerosols Packaged in Glass

By Salvatore Noto
Technical Director and Chief Perfumer
Sun-Lac, Inc.
Newark, N. J.

THE first glass aerosol cologne was introduced to the American market in an uncoated bottle about 1952. A low-pressure formulation of propellant, alcohol, and perfume oils was specially adapted for this purpose. This original formulation provided a suitable spray pattern and an adequate safety margin of 13 to 15 psi gauge pressure at 70°F.

Today, despite the fact that many other formulations have been tried, only two basic methods are still employed. In addition to the original (which incidentally offers absolutely no provision for extra safety) a second successful method of formulation was developed. However, due to the increase of pressure with this method (20 to 25 lbs. gauge pressure at 70°F.) it became necessary to use a glass aerosol bottle coated with a plastic.

Despite the development of these formulations, there is still a reluctance on the part of many manufacturers and marketers of perfume, colognes and toilet waters, to adopt the aerosol spray method of packaging for their particular products. This reluctance was based on the many basic problems connected with aerosol packaging of colognes. Some of these are as follows:

1. Incompatibility: That is, insolubility and general lack of stability of some of the aromatic chemicals in the propellant.
2. The desire to retain, as closely as possible, the true character of the original perfume oil.
3. Overcoming the disagreeable top note of the propellant.
4. Inadequate safety range of most existing pressurized packages.

After considerable research by the laboratories of Sun-Lac, Inc., Newark, followed by actual production runs, a method has been developed which successfully solves these problems.

Briefly, this new development assures the following:

1. Complete compatibility of the aromatics and essential oils in the propellants.
2. That the perfume oil is not adulterated in any way. Consequently there is nothing which can affect the true character of the original perfume oil.
3. That the proper balance of the correct propellants not only overcomes the disagreeable top note of the propellant, but at the same time achieves an adequate spray pattern. This, of course, is directly related to the problem of compatibility.
4. A combination of the above improvements coupled with a new simplified method of filling has brought about the "ultra-low pressure" package. This "ultra-low pressure" package will have a pressure of 10 to 12 pounds psig at 70°F. (Under certain conditions it is possible to achieve an even lower pressure.)

Aerosol bottles tested, using this new "ultra-low pressure" packaging method, have proved safer than other non-aerosol pressurized bottles commonly kept in the home. For example; "ultra-low pressure" aerosol bottles were dropped from a height of seven feet onto a ¼" steel plate and broken. The result was an 80% reduction of flying glass travel (both horizontal and vertical distances) as compared with conventional pressurized bottles commonly being used. A 60% reduction of flying glass travel as compared with bottles packaged using the original method and formulation.

In addition, this new method of formulation coupled with the new "ultra-low pressure" package, has proved more economical in other ways. Not only is the evaporation rate of the perfume oil improved, but the new method is initially lower in cost.

Sun-Lac, Inc. has invited all companies with a possible interest in this new development to submit their perfume oils at no obligation. The company's laboratory will package the submitted samples, employing Sun-Lac's new "ultra-low pressure" system, incorporating the method of improved compatibility.★

•

Baer Speaks at College

For the second consecutive year, Jean W. Baer, Pennsalt Chemicals representative for "Isotron" aerosol propellants in the Northeast, addressed senior and graduate students at the Massachusetts College of Pharmacy in Boston. Lecturing on the subject, "Aerosols and Pharmaceutical Spray Products," last month, he outlined the recent developments in the packaging and marketing of pharmaceuticals in pressurized containers and told the future pharmacists about the predicted future in this field.

A demonstration of various types of aerosols in action was included in his presentation. He showed the class of more than 100 students the difference between aerosol foams, powders and sprays, explaining the packaging techniques involved and the advantages of each.

Mr. Baer, whose headquarters are in New York City, joined Pennsalt two years ago. He is a Columbia University graduate.

The Seals Behind the Seal

The college seals reproduced here represent some of the alma maters of men and women at Aerosol Techniques, Inc.

ATi

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AEROSOL REPORT from EUROPE

By Dr. Tom C. Clark
Aerosol Age European Representative
Druk-Pak, Ltd., Zurich

BEFORE taking a look at Europe's 1958 aerosol performance, which showed large gains in all product types in all countries, it might be interesting to review briefly some of the developments in the past five years. To say the least, they are really significant. In those five years aerosols have grown in Europe from a high priced imported novelty to what, for some products, might today be called a household necessity. A whole new industry has developed in every European country, where some five or six years ago there was nothing.

Today, thousands of people are gainfully employed at tasks which were unknown. Loading stations have been machine-equipped to fill the newly-made containers with new chemicals, perfumed by new fragrances, capped by new valves, wrapped in new labels and shipped in new cartons—all European. It has been a most rewarding experience to have started from scratch with this new industry and a great pleasure to see it come now to maturity.

In considering any industrial problem it might be best to start first with the market, or sales. Without sales, there is no production, no distribution, no advertising — nothing moves. The whole economic cycle starts at the market and goods *must* satisfy the demands and requirements of the ultimate consumer, not just some laboratory technician or junior draftsman. How has Europe fared from this all-important market standpoint?

According to our own estimate, Europe produced and sold approximately 75 million aerosol units in 1958, up more than 30% from 1957, and at least 15-fold over 1954 (when this columnist first became associated with the European industry). Probably about 80% of the 1958 total consisted of three products: hair sprays, insecticides and air fresheners. And the market for these products is by no means saturated! We see continuing growth lines for each of them, and one of these days, European loaders, with their large reliance on pressure loading equipment, will discover the foam products (which ranked third in U. S. A. 1957 production at over 50 million units). Except for U. S. brands, which sell at the equivalent of between $1.00 and $1.25, aerosol foam shaving lathers are still relatively unknown in Europe. We did, however, recently see imported U. S. "Aero-Shave" in a Zurich department store for about 75 cents and the sales girl told us the demand was "good."

Paints are another product which Europe has hardly touched. A short while ago we saw some pressurized touch-up colors for Ford cars in Germany and understand that the "Volkswagen" will soon have the same product. If successful, this type of product could start a new "do-it-yourself" repainting program in the European small car field. Within a few years it would not be surprising to see Europe leading the world in pressurized pharmaceuticals and medicinal products, including foam salves. The new German "Athlete's Foot" spray, "Nurped", will undoubtedly give a strong impetus to other products in this field. Indeed, without danger of being unduly optimistic and looking solely at the empirical facts, it would be safe to say the whole future aerosol market in Europe looks exceedingly bright.

Considering the vast population differences in the various European countries, their lower consumer purchasing power, necessity for importing most components into many countries, export and foreign exchange currency difficulties, and all the other factors hampering European trade and industrial development, the European achievement is truly outstanding.

Price Policy

Hand in hand with steady annual production increases have come lower and still lower prices. This is as it should be. Consumer products in throw-away containers must be cheaply priced, otherwise volume production (on which the lower cost per unit is realized) cannot be achieved. And the price reductions, we are happy to state, started right where they should start: with the component suppliers. As we recall, the first to lower their prices were the propellant manufacturers. We would estimate that these prices are down between 20 and 25% from five years ago. The same applies to the container and valve manufacturers, and other component suppliers are in line with these figures. Also again as it should be, lower component prices have been consistently reflected in lower consumer end prices, which, if the theory holds, means a widening market with larger volume.

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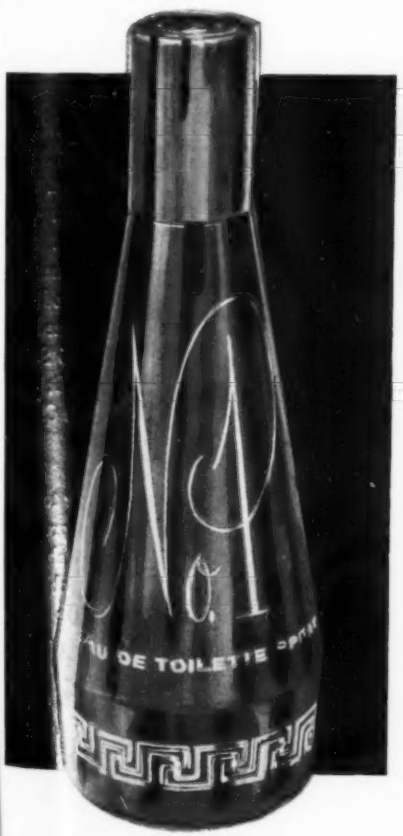
Five years ago, some of the prices with which the industry started off caused us misgivings about whether the aerosol product could ever be launched for the mass consumer market at all. U. S.-imported hair sprays sold for the equivalent of $4.50 for a 12-ounce can (with a $2.00 price tag printed right on the label). Insecticides brought $2.50 and air fresheners $2.00. These products are now down about 50%, and the volume has gone up correspondingly.

Can we look for still lower prices? Yes, definitely. This opinion may come as a shock to some Europeans, who have been heard to say that their prices have really hit rock-bottom, but we do believe further reductions will come about. Of course, there will be a shake-up, but after five years of sunshine it may be time to take down the umbrella! Just recently insecticides and air fresheners in England dropped one shilling (14 cents U. S.) and two weeks ago we saw a good five-ounce hair spray in a German department store for 75 cents.

An interesting example of this trend toward ever-lowered prices is the "K-2R" spot remover, a German product in a six-ounce Italian monoblock can, which was launched at the equivalent of $2.00 plus. It was supposed to compete with the same product, packaged in a tube, for about $0.60. Of course, the can was priced way out of the market. In just two months the retail price dropped to $1.30, a reduction of around 60%. Naturally, one asks, what went wrong with the first pricing? After all, a 60% voluntary and non-competitive price reduction should not be lightly taken, whereas a 5 or 10% competitive reduction is accepted practice. Those Europeans who complain about prices being too low might bear two important facts in mind:—

In the first place, we do not know of one single European filling operation which has failed, closed up, or gone bankrupt in the past five years. Whether they have made a great deal of or very little money, all have survived. At the end of five years in a new industry this performance may be regarded as truly remarkable. Had there been no satisfactory margins, many companies would long since have folded, sold their equipment, or otherwise given up the effort. But the opposite has occurred. Existing facilities are being constantly expanded and more new stations are being established. The trend, even in England, seems to be away from contract loading, with more companies putting in their own loading equipment and increasing their line of pressure packaged products. In any event, after five years of rather conclusive evidence it would appear that all industry segments — loaders (both contract and captive) propellant manufacturers, valve and can suppliers, equipment makers, etc.—have come through with bank loans paid off or reduced, money in the bank, and a healthy foundation for the future. It would appear to be a financially sound industry, and price competition can always be expected in a financially sound industry.

(*Continued on Page* 113)



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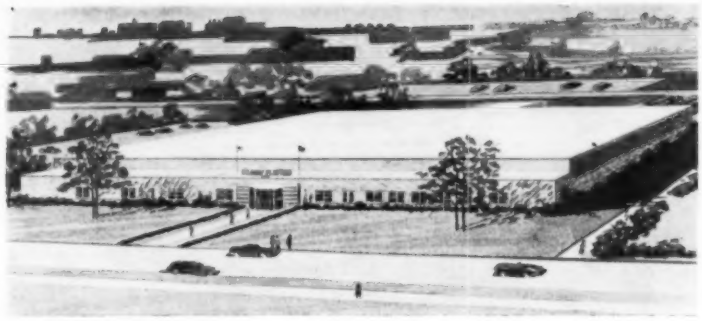
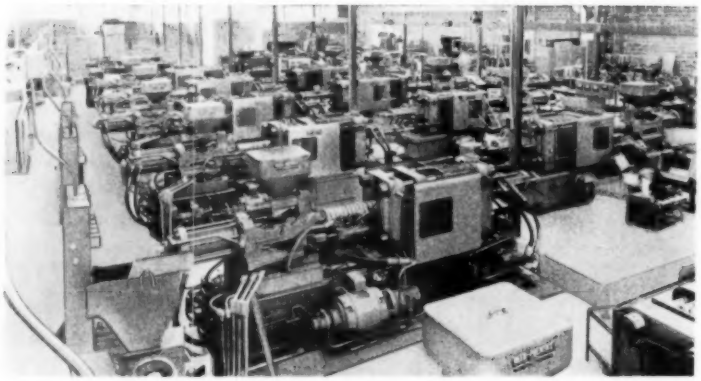


An architect's view of Gilbert Plastics' new plant. Only the landscaping remains to be done.

Gilbert Plastics' New Plant



The batteries of injection molding machinery in the main fabrication room. It is here that the aerosol caps are made.

A SPANKING new plant equipped with some of the largest plastic aerosol cap producing equipment in the country was officially opened early last month by Gilbert Plastics, Inc., pioneer plastics designer and manufacturer. Located in a new industrial park in Kenilworth, N. J., the 30,000-square-foot fireproof structure is on a three-acre site to provide ample space for future expansion.

Gilbert Plastics' new executive offices and plant facilities were blueprinted to effect maximum production, efficiency, and economy. The many batteries of injection molding machinery were designed and built exclusively for the company. And the company's maintenance, tool-and-equipment, and inventory-warehousing sections are all located directly adjacent to the huge production room.

The wood-paneled executive offices, the general offices, and reception rooms are completely air-conditioned —as are the research laboratories. The main manufacturing section is equipped with specially designed hot air exhaust fans, plus a roof cooling evaporation system.

Though Gilbert Plastics entered the aerosol field only about two and a half years ago, previous to that it had built up a fine reputation in other phases of injection molded plastics. For instance, it originated the "See-qual-Pak" plastic tomato tray which won the 1955 Produce Packaging Award of the Produce Packaging Association. In addition to aerosol caps, the company's current line includes rigid utility boxes with multiple compartments for packaging small components), and a complete line of self-service plastic baskets and trays for packaging produce, fresh fruits, and other food items.

A capsule picture of the company's corporate set-up is: the officers are Milton Ostrowitz, president; Sidney Ostrowitz, vice-president; and Joseph Murphy, sales manager. The firm was first founded 15 years ago in Gilbertville, Mass. and ten years ago moved to Hillside, N. J. to be nearer to the bulk of its customers. Products of Gilbert Plastics are distributed in Canada by Twinpak Ltd., 6525 Somerled Avenue, Montreal, and a British affiliate is I-to-I Plastics, Bridge Close, Romford, Essex, England.

THE aerosol industry visitor to the new plant will be most impressed by the highly automated cap fabrication equipment, which is capable of taking the granulated plastic raw material and quickly turning out a finely tooled fine-fitting cap.

Because the machinery *is* so automatic, the only real manual operations in the production are the mixing of the pigments to give specific

(*Continued on Page* 121)

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Available at all times in any quantity . . .

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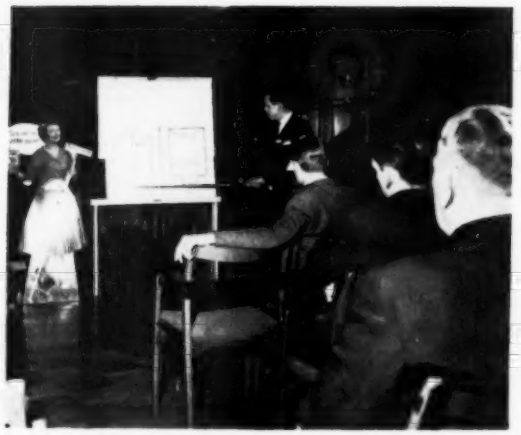
Dealer Education, New Containers Spark Swedish Firm's Aerosol Successes



THE aerosol concept at the marketing level has been receiving new impetus in Sweden these days.

Aktiebolaget Casco, Stockholm, a leading Swedish marketer of aerosol insecticides, has been holding a series of conferences in a hotel near Stockholm to educate retail dealers and clerks about the aerosol concept and on how to sell more aerosols.

Recently, during a one-week period, nearly one hundred drug store owners and clerks attended one-day lectures and demonstrations. One of each day's lectures was devoted to effective means of controlling insects via the aerosol method.

Part of the idea behind the educational program was to introduce Casco's "Radar-Jatte," called the "heavyweight champion of aerosols." The 32-ounce aluminum-extruded container, made by the French firm of Krieg & Zivy, is capped by an American-made Seaquist valve. Principal ingredients are pyrethrins and piperonyl butoxide.

A smaller version of "Radar-Jatte," this one in a 16-ounce metal box container from Great Britain, is also being sold by Casco for potential customers who prefer the smaller container. Both containers are being filled by Skandinaviska Aerosol AB, Stockholm.

Nils Hellberg, who is in charge of AB Casco's Agricultural Department, reports that initial consumer reaction to the "super-size" aerosols is "very encouraging." He comments: "The users of these larger sizes are presumably farmers who have already had good experience with aerosols in smaller sizes."

To meet the demand for an effective aerosol for household control of both flying and crawling insects, Casco recently introduced its "Snabb-Radar" in an American Can eight-ounce "Queen" container. Ingredients of this product are pyrethrins, piperonyl butoxide, and Perthane.

"Snabb-Radar" is being distributed primarily through drug stores and similar small retailers, though "Radar-Jatte" and its smaller brother are being marketed mostly through grain dealers, pesticide dealers, etc.

Casco's two new insecticide containers. The larger, at right, is a 32 ounce aluminum extruded unit made in France.

•

SCC to Hear Aerosol Paper

Morris J. Root, technical director of G. Barr & Co., Chicago custom filler, will be one of the featured speakers at the semi-annual technical meeting of the Society of Cosmetic Chemists, which is scheduled for May 7, at the Hotel Commodore in New York City. Mr. Root will speak on "Corrosion Testing of Aerosol Products."

Other papers of interest at the one-day meeting will be

Measurement of Skin Moisture by Potentiometric Methods by Dr. I. S. Botwinick Research Testing Laboratories, New York.

Degerming Activity of Toilet Bars — Interpretation of Bacteriological Data from Hand Washing Tests, by Dr. J. J. Travers, Lever Brothers.

Long Term Tissue Culture as an Instrument in Quantitative Research, by Dr. Wilton R. Earle, Laboratory of Biology, National Cancer Institute.

The Effect of Sorbic Acid and other Preservatives on Organism Growth in Typical Non-Ionic Emulsified Cosmetic Products, by R. Donald Charles, Atlas Powder Co.

Application of Gas Chromatography and Mass Spectrometry to the Determination of Odor, by Dr. Charles Merritt, Jr., Quartermaster Research and Engineering Center.

Mechanisms of Enzyme Action, Dr. Daniel E. Koshland, Jr., Brookhaven National Laboratory.

(A report on these papers will appear in the June issue of *Aerosol Age.*)

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AEROSOLS in review

In this column important aerosol subjects appearing in other periodicals (both domestic and foreign) will be reviewed and summarized. It is felt that this service will enable the reader to keep abreast of most of the significant contemporary articles on the industry, even though they may appear in other periodicals. Since there is a chance that some pertinent articles may be overlooked, it will be helpful if readers will call our attention to any they judge important enough to review.—The Editor.

Aerosol Cologne Acceptance Slower in Europe

THE aerosol for perfumes and colognes is catching on more slowly in Europe than in the U. S., declared Karen Dastakian, director of Parfums Marcel Rochas-Paris in an interview in the April issue of *Beauty Fashion*. "While new items are regularly introduced into lines, there isn't nearly the emphasis on newness that exists here. The aerosol, for example, which we find to be very good for business is developing well. But it is really a small baby outside the U.S. The French are a little more relaxed in their conduct of business and believe in making haste slowly. We don't eat the fruit when it is still green!"

In reply to the question: "Do the women of France prefer perfume over cologne or toilet water?", Mr. Dastakian replied: "In every line in every country, the growth of perfumed waters is proportionately greater than that of perfume extracts. This is a world-wide phenomenon. There has been an increase in the number of fragrance customers, but not an increase in fragrance use per customer. Less effort in educating the consumer to the differences between perfume products is responsible for this increased use of perfumed waters."

•

THE aerosol may prove invaluable in applying prednisolone for skin ailments involving large areas, it has been reported by two separate reports in the *Archives of Dermatology of the American Medical Association* (79: 103, 1959). Two New York doctors, Frederick Reiss and Andrew Kallos, using Schering's "Meti-Derm," obtained good results with 63 of 109 patients suffering various dermatological conditions. In Baltimore, Dr. Harry M. Robinson, reported good or excellent results in 65 out of 79 patients, most of whom had some type of eczema.

The New York doctors reported an additional 26 patients showed "fair" results (relief from itching only). Dr. Robinson's report listed two more with some additional response, three with no effect, and nine with relief of itching only.

He indicated that his study showed a more marked relief of itching with the aerosol than with creams or ointments. Thirty-nine of the patients who responded well required only one week of treatment for their lesions to clear, and the remainder from two to four weeks.

•

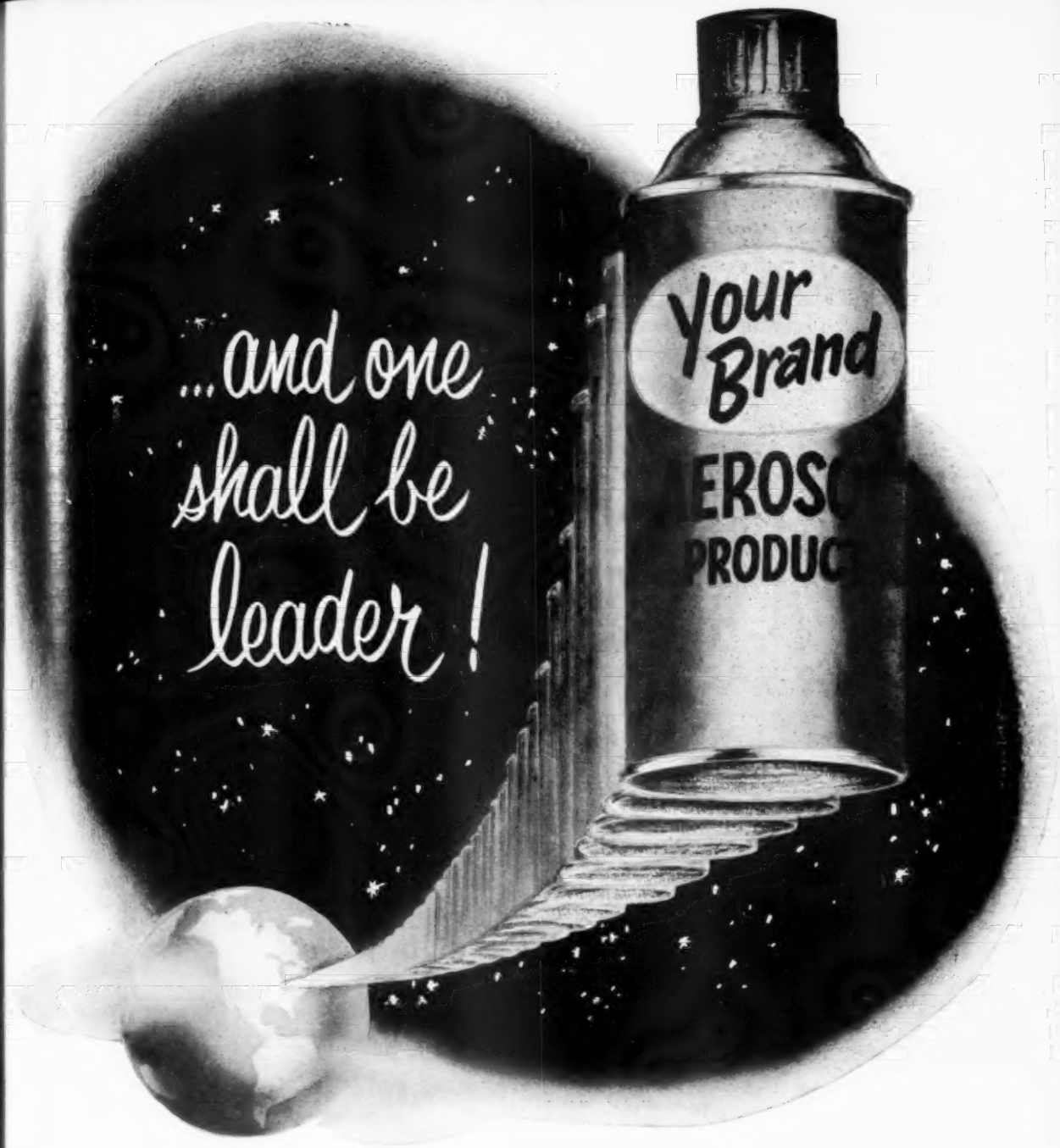
AN ARGUMENT for plastic coating of glass aerosol contaners is advanced by A. R. Marks, of the Wheaton Plastics Co., in the April issue of *Drug & Cosmetic Industry*. Using cubes to represent the proportional volume increases that might be expected in breaking glass aerosols, Mr. Marks demonstrates graphically how the plastic coating adds to protection of the glass.

"The fact that glass is frangible is a drawback. But add to the glass the plastic coating; with 2000 pounds of tensile strength and an elongation factor of 400 to 500%, the tough, resilient rubbery nature of the plastic cancels the frangibility of the glass. Here is the perfect mating of materials to produce a container of strength, character, beauty, color, and warmth."

Turning to possible use of glass for nitrogen-propelled products, Mr. Marks writes: "The reason why pressure is restricted to 25 pounds of pressure (for liquefied propellants) and 90 pounds (for compressed gas propellants) must be explained. It has been a major fallacy in determining potential hazard to use pressure as the sole criterion. Granted that pressure alone can distort various containers rendering them unmarketable, pressure *per se* is not the major factor in the glass container, although it has its relative importance. Since the glass container has pressure retention characteristics far superior to most other containers used for pressure packaging, the factor to consider above all is the volume that will be occupied by the expanded propellant at atmospheric pressure and ambient temperatures."

•

IN THE same issue of *Drug & Cosmetic Industry*, Dr. Joseph Kalish, technical editor of the magazine, analyzes some possible implications of the PVP hair spray patent recently granted to LaMaur, Inc., Minneapolis toilet goods marketer. Since hair sprays totaled more than 95 million units in 1957, Dr. Kalish points out, the "stakes are large for all concerned."



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After defining patents in general terms, Dr. Kalish declares: "If the decision in this case were for the exclusive position, the result would almost certainly be widespread litigation against infringers and expensive suits testing the validity of the patent, as well as intensified searching for other materials to by-pass the patent claims.

"With general licensing, however, the problem would become solely one of economics: can the burden of royalty payment be borne, or would it be cheaper in the long run to undertake expensive litigation in an attempt to invalidate the patent?

"... Recent patent litigation in the cosmetic and pharmaceutical industry has proved to be long-drawn-out and very costly. Only the final decision of the courts can say whether the patent is valid or invalid; a royalty rate considered excessive encourages litigation instead of licensing.

"What is the status of the patent itself? Only a skilled patent lawyer can guess at, and only the courts can determine the validity of, the specifications and claims of the patent. Since it was filed on July 31, 1952 and has survived at least one interference action, it cannot be readily dismissed. The breadth of coverage of the claims may also come up for adjudication, especially in deciding whether the legal meaning of polyvinyl pyrrolidone covers the use of polyvinyl pyrrolidone copolymers."

•

AN EXCELLENT article on aerosol propellants is a feature of the March issue of *Chemical Products*, English trade periodical. The author, P. Dyson, of Imperial Chemical Industries, Ltd., has assembled most of the important basic material on compressed gas and liquefied gas propellants, and has included some general information on methylene chloride, vinyl chloride, and the hydrocarbon propellants such as propane and butane.

Most of the information about general handling procedures and chemical characteristics has been included in this and other periodicals. However, what Mr. Dyson has to say on propellant containers bears repeating here:

"Propellant containers should never be overheated, since this can cause the liquid contents to expand sufficiently to fill the container completely. Hydraulic pressure, so developed, rises rapidly as the temperature is further increased (often more than 100 psi for each 1°C. rise) and can ultimately lead to very grave consequences. In the case of storage tanks, measures must be taken to guard against over filling and it is also usual to incorporate pressure relieving devices such as a bursting disc blowing off to a relief vessel. In all cases, liquefied gas containers should be stored away from fire risk.

"Although propellant containers are designed to withstand all reasonable handling, they should not be dropped or exposed to conditions which might cause their deterioration. With large packages such as drums, with gross weights of the order of 30 cwt., it is nearly always necessary to use lifting tackle for handling—an ideal method being an overhead runway with hoist and lifting bar or chains, so that the drums may be off loaded and moved directly into their position of use. Low slung trucks are a convenient means of moving drums over longer distances or over uneven surfaces.

"The manufacturer should be consulted about the method of withdrawing liquid propellant from cylinders since dip-pipes may or may not be fitted, depending on the product, the supplier, and the size of the cylinder. All drums are fitted with two dip-pipes and valves, and when the latter are positioned vertically one above the other, with the drum horizontal, the top valve delivers gas and the bottom valve liquid.

"Normally, propellants can be discharged as liquid from their containers under their own pressure and for cold filling it is only necessary to make suitable connection between the container valve and the propellant cooling unit.

"Most pressure filling equipment, however, requires a greater pressu[re] for its operation than is provided [by] the propellant and it is necessary [to] apply additional pressure by me[ans] of dry nitrogen or compressed a[ir]. In such cases, care should be tak[en] to avoid contaminating the propell[ant] or container (for example, by oil [or] moisture); in addition, it should [be] ensured that the safe working p[res]sure of the propellant container is [not] exceeded and it is advisable to con[sult] the supplier on these points.

"When discharging a propel[lant] mixture as liquid from a contai[ner], the pressure in the free space of the container remains the same and the composition of the liquid the s[ame] until no more liquid passes forward. At this point, however, the container is left full of a mixture of the vapors of the two components, which will be rich in the more volatile component. For example, the vapor remaining in a container of 50/50 dichlorodifluoromethane/trichlorofluoromethane can contain over 80% dichlorodifluoromethane. If this vapor is condensed, say in cold filling, the condensate is also richer in dichlorodifluoromethane and, if charged into aerosol dispensers, gives too high a pressure. It is therefore advisable to install an indicator or cut-off device to ensure that the propellant container is isolated from the filling plant when liquid flow ceases."

•

PRODUCT liability, particularly as it applies to the pharmaceutical marketer, is the subject of an excellent article in the March issue of *Drug & Cosmetic Industry*. Written by Everett I. Willis, of Dewey, Ballantine, Bushby, Palmer & Wood, the article points out that the premise that sellers of products for human consumption have a special responsibility for safety of their goods goes back four centuries in English common law.

"The principal legal theory that imposes liability without fault on drug manufacturers, wholesalers, and retailers is that of implied warranty. This concept, which had its origins in the common law, is found today in the sales acts in force in most states.

(*Continued on Page* 115)

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NEWS of Pressure Packaging

Gardner to Powr-Pak

Fred R. Gardner has been named sales manager of PowrPak-Conn Chem. Inc., Bridgeport custom filler. He had held a similar post with Aerosol Techniques, Inc., another Bridgeport custom filler.

Prior to his association with ATI, Mr. Gardner was manager of the manufacturing division of Stein Hall & Co., industrial chemical manufacturers, and previous to that was executive vice-president of Allied Research Corp.

•

Reddi-Wip to New Plant

Reddi-Wip, Inc., Los Angeles, a leading marketer of pressurized spray toppings, last month announced plans to move to a newly-constructed plant at 2443 E. 27th Street in Vernon, Calif. The company had been located at 1224 South San Pedro Street, Los Angeles, since 1948.

The move is expected to be completed sometime in July.

•

Exchange May Debar Bon Ami

The Securities and Exchange Commission last month moved closer to delisting the Bon Ami Co. from the New York Stock Exchange. The company, a leading aerosol window cleaner marketer, failed to meet the exchange's earnings tests, which require that a company's A and B stock have an aggregate market value of $2 million each and that the company earn $200,000 a year.

Bon Ami first ran into trouble several months ago when it was revealed that Alexander Guterma, then Bon Ami chairman, had failed to file reports on the company's financial status with the S.E.C.'s Corporation Finance Division. Mr. Guterma has since been indicted on various criminal and civil charges involving stock of both Bon Ami and of the F. L. Jacobs Co., a Detroit holding company.

Emil Morosini, Jr., Bon Ami vice-president, in making a plea that the company not be delisted from the Stock Exchange, said Bon Ami's financial outlook has improved since the new management took over last July. He acknowledged, however that Bon Ami would show a "substantial loss" for 1958.

•

Nichols to Bradley Post

Albert B. Nichols has been appointed general sales manager of the Bradley-Sun Division of American Can Co., Maynard, Mass.

•

Redram Chemical Appoints 2

Redram Chemical Co., Brooklyn, N. Y., custom filler, has announced

Bronfein Benichasa

the appointment of Isidore Bronfein as chief chemist and of Thomas J. Benichasa as chief engineer.

Mr. Bronfein, who holds a B. Sc. degree from Brooklyn College, and has had 20-years extensive experience in analytical and physical chemistry, will be in Redram's aerosol research and quality control department. He has been associated with Antoine Chiris Co. as compounder and perfumer and more recently was associated with B. H. Krueger, Inc., private label manufacturer, and with Associated Brands, custom aerosol filler.

Mr. Benichase brings to Redram a thorough knowledge of all types of aerosol equipment. He was associated with Red Devil Paints for the past three years and prior to that held a similar position with the Technical Color & Chemical Works.

Old Empire Expands Plant

Old Empire Inc., Newark, N. J. custom filler, last month announced the acquisition of 15,000 square feet of additional manufacturing and storage space. John DeElorza, president of the company, stated that the expansion is designed to add to the company's production and to provide space for their new pharmaceutical area for packaging. The company recently installed another Mojonnier aerosol filling line.

•

C-P Forms Drug Division

Colgate-Palmolive Co., New York, last month announced the appointment of Herbert P. Nack to the position of general manager of the company's newly-created Drug Division. He joins Colgate directly from Johnson & Johnson, where he was director of the Professional Products Division and where he also served as consultant to the president and the executive committee on matters pertaining to the drug industry.

Prior to his connection with Johnson & Johnson, Mr. Nack was, for two years, director of sales for the William S. Merrill Co., a division of Vick Chemical Co., and general manager of their Canadian company. He began his career in 1945 as a territorial salesman for the White Laboratories and was promoted to District Manager. In 1949 he joined Chas. Pfizer & Company, where he became Administrative Vice-President and General Manager of their subsidiary, J. B. Roerig & Company.

•

Dr. Jellinek Honored

The American Society of Perfumers last month voted to grant honorary membership to Dr. Paul Jellinek, internationally famous perfumer of Polak's Frutal Works, for his contributions to the field of perfumery

In the food field...

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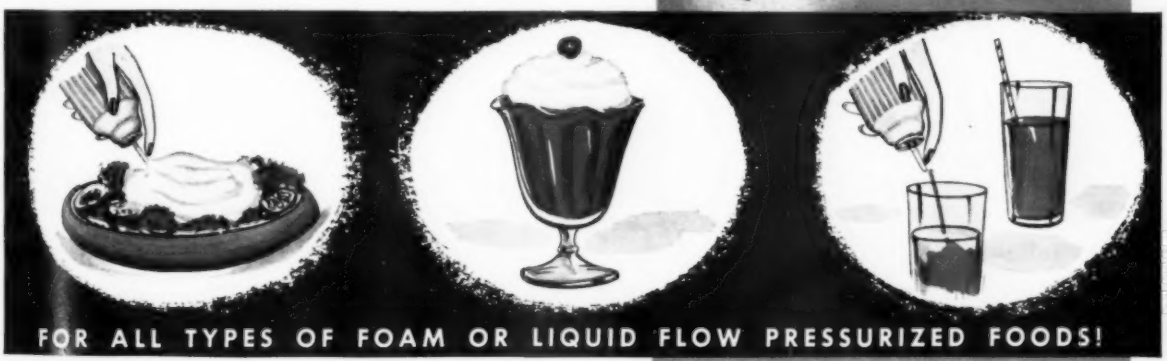

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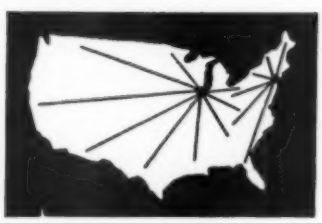

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LeBeau Heads Mojonnier Sales

Mojonnier Associates Division, Kartridg-Pak Machine Co., recently announced appointment of Carter N. LeBeau as Sales

Carter N. LeBeau

Manager of Mojonnier Associates. He has been sales manager of Kartridg-Pak Machine Co., manufacturer of meat and food packaging equipment.

Mojonnier Associates, a 12-year old firm specializing in complete aerosol packaging machinery, was acquired by Kartridg-Pak Machine Company in October, 1958. In his new position Mr. Lebeau will continue to handle Kartridg-Pak sales.

•

Aerosol Management Conference

The "Freon" Products Department of E. I. du Pont de Nemours & Co., Wilmington, last month held a three-day aerosol management conference for aerosol executives and key technical personnel at the Nemours Auditorium in Wilmington, April 16-18. Main function of the conference, to which were invited aerosol executives from filling and marketing companies all over the country, was to formally introduce DuPont's new food propellant "Freon C318."

But in addition to two papers on the new food propellant by Drs. J. A. Zapp and F. W. Blodgett, a number of other significant aerosol papers were presented. Among these were:

Selling Aerosols in Tomorrow's Market, by John W. Straus, merchandise administrator, Macy's New York.

Changing Needs of your Number One Customer — The American Homemaker, by Charlotte Montgomery, columnist and consultant for *Good Housekeeping*.

The Economic Climate for the Next Decade, by Ira T. Ellis, economist, DuPont.

Profile of Aerosol Management, by Thomas D. Johnson, Jr., assistant director of sales, DuPont "Freon" Products.

Other papers describing various phases of DuPont's corporate activities were presented by a number of DuPont executives. Altogether, there were nearly 100 aerosol executives and technical personnel in attendance at the three-day meeting.

One highlight of the affair was an "aerosol dinner," in which cheese spreads (garlic, anchovy, and onion) for appetizers, mayonnaise, butter and sour cream for seasoning the main course, and whipped toppings (regular, chocolate, and strawberry) for the dessert course, were served along with conventional foods. All were powered by C318, DuPont's new food propellant.

•

Ryland-Johnson Moves

Ryland-Johnson Co., New York, last month moved its plant to a new location at 85 Tompkins Street, Staten Island 4, N. Y. The company is a supplier of aromatic chemicals, essential oils, and other materials.

Gardner to Sterling Board

Charles G. Gardner, vice-president in charge of Eastern sales of the Sterling Seal Co., last month was elected to the company's board of directors. The announcement came after the company's board of directors meeting on April 4.

•

Lanvin Names Sterling

Lanvin Parfums, New York, recently announced the appointment of Daniel H. Sterling as vice-president in charge of sales. He had been sales manager at Richard Hudnut for 14 years and prior to that held a similar position with Elizabeth Arden.

International Aerosol Symposium Program

AN open symposium on aerosol propellants will be the feature of the one-day meeting of the first international symposium on aerosols in Paris next month. Scheduled to be held on Wednesday, June 26, at the Maison de La Chimie, 28 Rue Saint-Dominique, the meeting is sponsored by the European Federation of Aerosol Associations, a loose alliance of all major national and regional aerosol associations in Europe.

Another highlight of the meeting will be an address on American developments in the aerosol industry, by an American speaker yet to be named. However, the major part of the program will be made up of well-known figures in the European aerosol industry, including authorities on vinyl chloride, dry ice, nitrogen, and other propellants. The program is as follows:

PROGRAM

9:15 a.m. 1) *Welcome speech and Introduction*
by C. FRANCK, president of C.F.A. (France).

9:30 a.m. 2) *Problems in the Perfuming of Aerosols from the Physico-Chemical Point of View*
by Dr. WITJENS (Holland).

10:15 a.m. 3) *Application of Aerosols in the Pharmaceutical Industry*
by Mr. BRISTON, B. Sc., A.P.I.M. Inst. Pkg. (England).

11:00 a.m. 4) *Method of Determination of the Granulometric Characteristics of Aerosol Sprays*
by Mr. PETTE, Ing. Chim. I.C.N. (France).

11:30 a.m. 5) *Protective Varnishes*
by Mr. ETIENNE, Ing. dipl. de l'Institut Philotechnique de Bruxelles (France).

3:00 p.m. 6) *Possibilities of the Normalization in the Aerosol Industry*
by Mr. TANGERMANN Dipl. Inf. (Germany).

4:00 p.m. 7) *Open discussion on Propellants:*
a) Various Propellants (Introduction)
by Mr. TANGERMANN, Dipl. Ing. (Germany).
b) General Discussion of the Particular Problems under the Direction of Mr. HIRSCHBURGER (Switzerland).
— Mr. LESSENICH, Dipl. Ing., (Germany) answers to questions on chlorofluorinated hydrocarbons.
— Dr. KUBLER (Germany) answers to questions on vinyl chloride and methylene chloride.
— Prof. Dr. HAASE (Germany) answers to questions on carbonic acid.
— Mr. DELMORE (Switzerland) answers to questions on nitrogen.
— Mr. SCHLOSS (Germany) answers to questions on butane-propane.

5:00 p.m. 8) *Comments on the Developments of the Aerosol Industry in the U. S. A.*
by an American Expert.

8:15 p.m. Dinner Dance in the Pavillon Dauphine, Avenue Foch.

Aerosol Techniques Installs Pharmaceutical Line

The inspection crew on Aerosol Technique's new pharmaceutical line. Each container is examined prior to being cartoned.

FACILITIES for manufacturing and packaging aerosol pharmaceuticals are now functioning at the Bridgeport, Conn., plant of Aerosol Techniques. Located apart from ATI's main plant in Bridgeport, Conn., the new center makes available comprehensive laboratory and production facilities for the formulation, manufacture and quality control of all phases of pharmaceuticals in all types of containers, with particular adaptation to production of pharmaceutical aerosols for inhalation.

This new division has its own refrigeration, power and dry air facilities and is equipped with modern micronizing, homogenizing, mixing and filling apparatus, with abundant storage area. Each stage of the manufacturing process is thoroughly checked out in the company's central pharmaceutical laboratories by the staff of chemists and pharmacists.

The center was planned and constructed by ATI plant specialists with consultants in the aerosol, pharmaceutical, air conditioning and equipment fields. Samuel B. Prussin, vice president in charge of technical operations, will direct the new facilities.

The main filling operation is housed in a separate room to maintain the sterile integrity of the plant.

•

Bortell to Shulton Post

The appointment of Clinton Bortell as a sales supervisor for the consumer products of the Fine Chemicals Division of Shulton, Inc., has been announced from company headquarters in New York. He will be responsible for sales of consumer chemicals (including the well-known Bridgeport "Aer-a-sol" line recently acquired by Shulton) in the Southwest and will make his headquarters at the Shulton offices in Dallas.

Prior to joining Shulton, Inc., Mr. Bortell was a salesman with International Latex Corp.; and prior to that he was associated with B. T. Babbitt, in a similar capacity.

•

Pressler to Rhodia

Rhodia, Inc., New York has announced the appointment of Charles E. Pressler as perfumer in the company's research laboratories in New Brunswick, N. J. Mr. Pressler has been engaged in the perfume industry for 20 years and has held various positions in the laboratories of Naugatuck Aromatics Division of United States Rubber Co. and Colgate Palmolive Co. For the past four years prior to his association with Rhodia, he was chief perfumer of Germaine Monteil, Inc. of New York City.

•

Shulton Father's Day Campaign

Highlights of Shulton's 1959 Father's Day campaign will be: (1) a repeat of the highly successful "Old Spice" display contest; (2) a heavy ad schedule, and (3) a new "Old Spice" travel set popularly priced at $2. plus tax for easy pick-up gift sales.

There will be ten cash awards with a top prize of $1,000 for the most imaginative variations of the window display material shown here. Judges will be Tom Lee, display consultant, Tom Lee Ltd.; Frazer Sinclair, publisher, *Beauty Fashion;* George Klinger, managing editor, *Drug Topics.* Winners will be announced before Sept. 1.

Ad campaign will include full pages in four colors featuring Old Spice gift items. *Life, Look, Saturday Evening Post* and *Christian Science Monitor* will be used, along with daily and weekend radio spot campaigns.

•

List Propellant Capacity

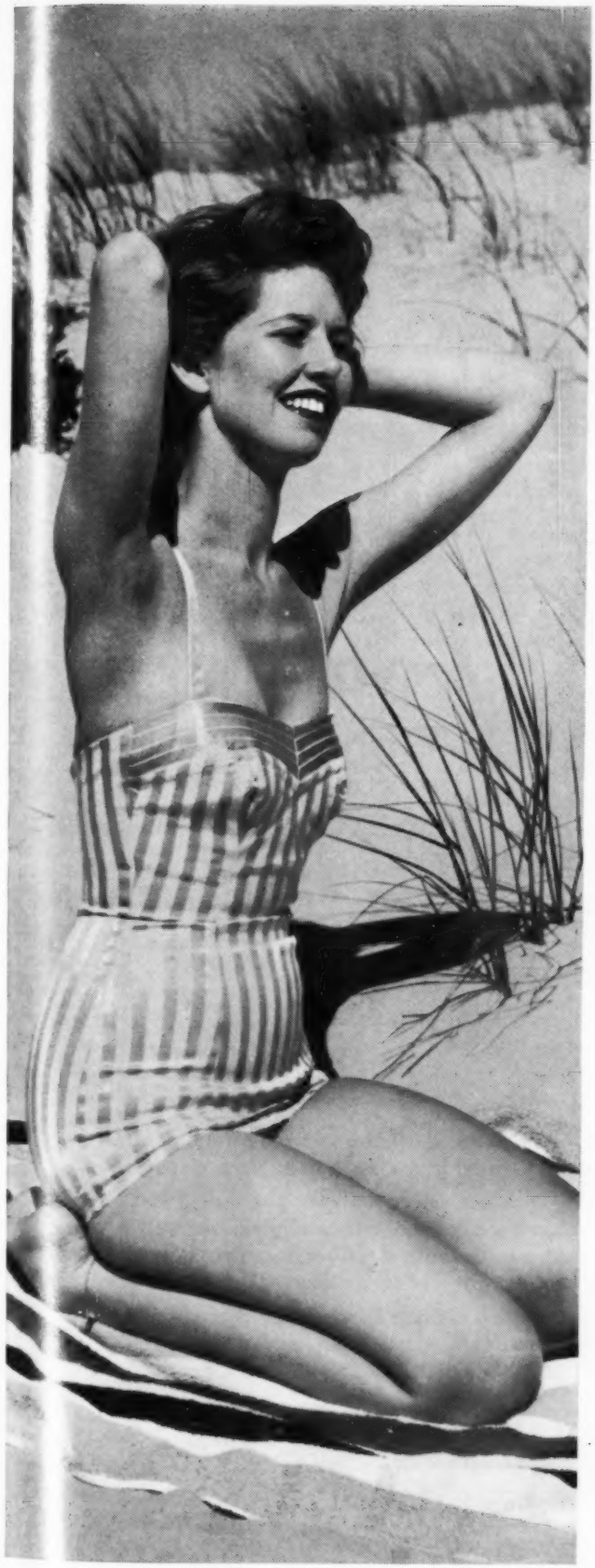
The fluorinated hydrocarbon capacity for the four producers of these materials is now estimated to be about 440 million pounds a year. This figure was suggested by *Drug & Cosmetic Industry,* which announced that Du Pont had recently made public the fact that its capacity is 280 million pounds per year.

Totals for other manufacturers of fluorinated hydrocarbons (90% of which are used for aerosol propellants and refrigerants) are: General Chemical, more than 60 million pounds; Carbide, 50 million; and Pennsalt, also 50 million pounds. Consumption this year is expected to reach about 200 million pounds.

•

PMC Industries Names Grill

PMC Industries, Hackensack, N. J., manufacturers of aerosol valve inserters and other packaging machinery, last month named William Grill to the post of general sales manager.



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Representatives of Hercules Powder Company will be pleased to discuss comparative data with you. As the first to produce commercial quantities of diethyltoluamide, Hercules has assembled important technical and sales research information on meta Delphene. Sales of these products have now totalled many millions of units. We invite you to contact any of the offices listed below.

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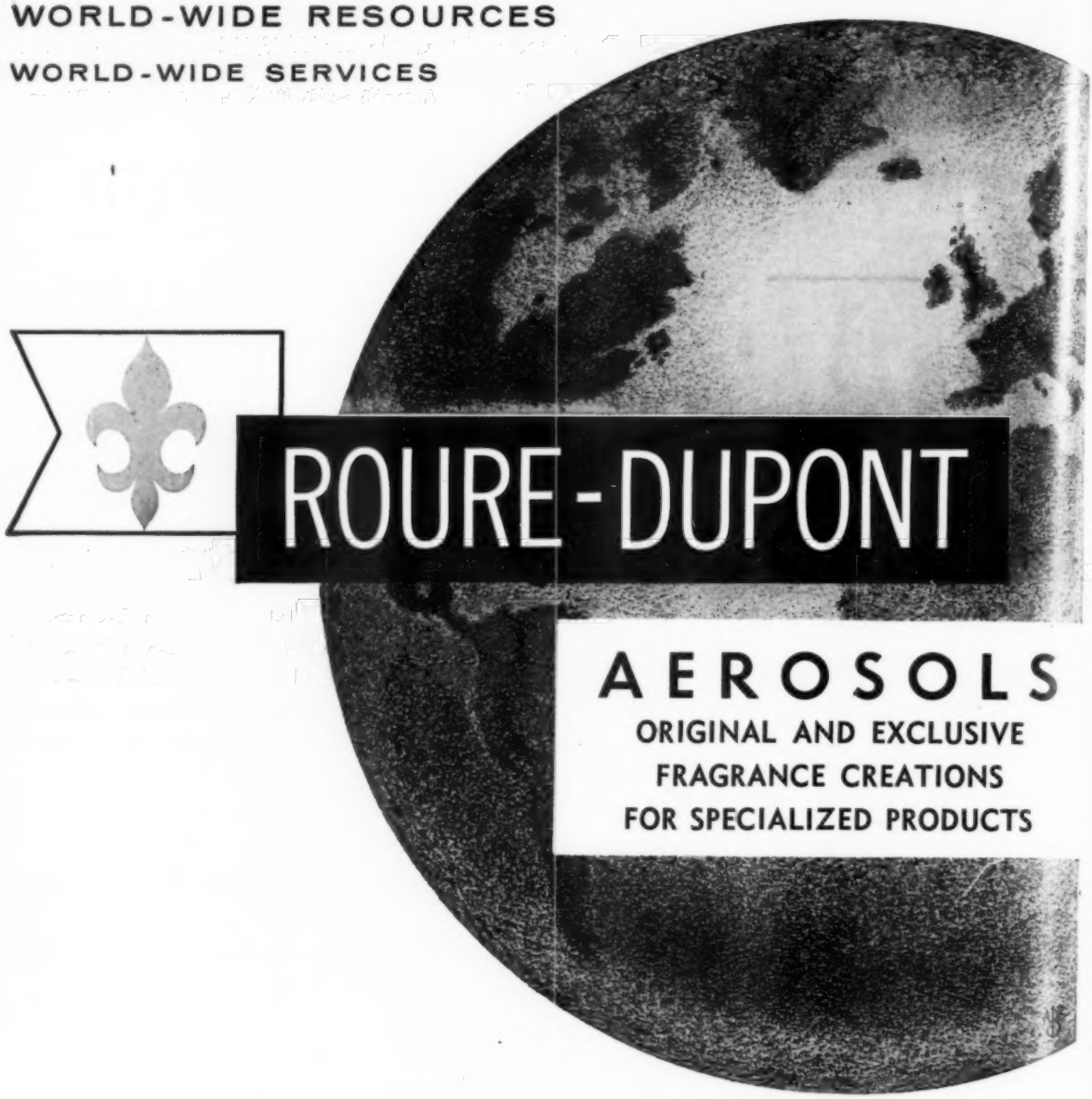

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Market Indications Strong

"The upward trend in the use of aerosol products shows no sign of slowing down," says Miss Elizabeth Watters, market analyst for Crown Cork and Seal Co. of Philadelphia. "In fact," she went on to say recently in evaluating present developments in the aerosol industry, "as the public becomes increasingly aware of needed new products in easy-to-use containers, the future of aerosols should be even brighter than projections of phenomenal past successes would indicate."

At the same time, however, Miss Watters added a cautioning note. "It is a mistake to assume," she warned, "that a new aerosol product will sell satisfactorily from the very start just because it fills a need and is packaged with strong shelf appeal. Surveys have shown that too few consumers are aware of the wide range of quality products already available to them in the aerosol can.

"How a new product is marketed is important," she pointed out. "There may be a lesson to be learned in the success of door-to-door and in-the-home selling of certain spray can products in the past few years. When a housewife hears about a new aerosol product and actually sees the ease with which it works, its advantages of convenience and long-range economy become much more readily apparent and she is more likely to buy."

•

Colgate Names Two in Research

Dr. James W. Jenkins, a group leader in the analytical section of Colgate-Palmolive's corporate research department, has been named to direct both the instrumentation group and the organic identification group. Arthur P. Kent has been appointed group leader of the organic identification group to assist Dr. Jenkins in his expanded duties.

Dr. Jenkins joined the research staff of Colgate-Palmolive in 1952. He received a B. S. degree from Allegheny College in 1944 and his Ph.D. from the University of Buffalo in 1950. Active in committee work for the Toilet Goods Association and the American Oil Chemists' Society, he also is a member of the American Chemical Society and the Society of Cosmetic Chemists.

•

Craige to Peerless Post

The Peerless Tube Co., Bloomfield, N. J., last month announced the appointment of Saunders T. Craige as a salesman for its Aerosol Division. For the past ten years Mr. Craige has held various sales and administrative posts, the most recent of which was as sales manager for Patco Manufacturing Co., Philadelphia.

Mr. Craige replaces William G. Remington, who moves up to become administrative assistant to the company's president.

Kendall Heads Mack Molding

Donald S. Kendall has been elected president of the Mack Molding Co., Wayne, N. J., manufacturer of aerosol overcaps. He was a co-founder of Mack with the late Kenneth W. Macksey, whom he succeeds as president, and until his present appointment was company treasurer.

Mr. Kendall will make his headquarters at the company's plant at Arlington, Vt.

•

Doran Joins Mennen Co.

Jack Doran has been appointed to the newly-created post of director of marketing for the Mennen Co. He had held a similar position with Lever Bros. Co.

St. John's University Holds First Pharmacy Congress

Participants in the medicinal aerosol presentation by Dr. John J. Sciarra, at St. John's University, (far right), included Sister M. Etheldreda, St. Mary's Hospital and E. Ligetti, president, Queens County Pharmaceutical Society (at Sister's left) at the St. John's University Pharmacy Congress.

Over 300 members of the pharmaceutical profession, representing hospital, community and industrial pharmacy, attended the first annual Pharmacy Congress held at St. John's University's Long Island Division campus on March 17. A feature of the morning session was a talk on "Medicinal and Pharmaceutical Aerosols" by Dr. John J. Sciarra, assistant professor of pharmaceutical chemistry at St. John's College of Pharmacy. The talk covered the basic and fundamental concepts of aerosols and aerosol formulations, as well as a brief discussion on the nature of propellants, valves, containers, physiology of respiration, and advantages of both medicinal and pharmaceutical aerosols.

During his talk, Dr. Sciarra demonstrated laboratory filling of aerosol products by both cold and pressure filling. A shave cream, spray-on-bandage, and a medicinal powder, were some of the products prepared during the demonstration. This portion of the program was of special interest to hospital pharmacists since many aerosol products are being prescribed and used in hospitals. Many of the concerns manufacturing medicinal and pharmaceutical aerosols supplied several of their products for display as well as professional literature describing the products.

Moderator of the program was Sister M. Etheldreda, F.S.S.J., chief pharmacist, St. Mary's Hospital. The overall theme of the Congress was "Improved Health Service Through Pharmacy Progress."

Sheen to Crown Midwest Post

Crown Cork & Seal Co., Philadelphia, has appointed Al B. Sheen sales manager of the company's Mid-West region. He joined Crown in late 1958 as manager of its Export Sales Division after several years in various executive capacities with the Coca Cola Export Corp.

In his new post, Mr. Sheen will headquarter in Chicago and be responsible for the sale of all the products manufactured by the Company in the states of Illinois, Wisconsin, Minnesota, Iowa, Missouri, Kansas, Nebraska, North and South Dakota, Colorado, and a portion of Wyoming.

A native of Peoria, Illinois, Mr. Sheen attended St. Viator's College, Kankakee, Illinois, and later studied Accounting, Advertising and Journalism at the University of Chicago.

•

Canadian Tax Raised

The Toilet Goods Manufacturers' Association of Canada last month revealed that the excise tax on toilet goods, cosmetics, and pharmaceuticals was raised from 10% to 11% on April 10. Also, it was revealed that the Excise Tax Act had been amended to read:

> "That the definition of 'producer or manufacturer' be extended to include any person who packages toilet articles, preparations, cosmetics or pharmaceuticals except where they are packaged by a retailer in his retail premises for sale therefrom directly to consumers or users;
>
> "That the definition of 'manufacturer or producer' be extended to include any person who markets, except by sale at retail, directly to consumers or users, toilet articles, preparations, cosmetics, or pharmaceuticals manufactured under his own brand."

This measure is expected to affect American aerosol marketers who sell their products in Canada, as well as Canadian marketers.

•

Toni to Sponsor Contest

The Toni Co., Chicago, a division of The Gillette Co., has become a national sponsor of the 1959 Mrs. America Contest. This marks Toni's second year of participation in the Mrs. America promotion.

Toni, as a national sponsor, will emphasize the importance of hair care and hair beauty. In the good grooming events at the state and national finals, contestants will demonstrate their ability to keep their hair well-groomed. Each contestant will style her hair three different ways, using "Adorn" hair spray. She will also answer a written quiz on home permanent waving.

All state finals will be completed by May 23. The new Mrs. America will be selected at the national finals and crowned at Fort Lauderdale on June 20.

•

Powers Elected VP

Dr. Donald H. Powers, director of toiletries and cosmetics at the Warner-Lambert Research Institute, Morris Plains, N. J., has been advanced to the post of vice-president for toiletries and cosmetics. Dr. Powers was a speaker at the CSMA convention in December and at the British SCC meeting last month.

At the same time the institute announced the appointment of Dr. John R. Beem as director of clinical research. He had been assistant director of clinical investigation for Merck Sharp & Dohme Research Laboratories.

Mockridge to Ertel Post

Ertel Engineering Corp., Kingston, N. Y., has announced the appointment of Oscar A. Mockridge, Jr., as sales manager of the company's New York office at 40 West 48th Street.

A registered professional engineer in New Jersey and Missouri, Mr. Mockridge has had over 15 years of successful experience in pressure and vacuum filtration. For nearly 10 years he was a service and sales engineer for the Celite Division of Johns-Manville in New Jersey and New York.

During part of World War II he was an industrial specialist in the Protective Coatings Branch of War Production Board. Later Mr. Mockridge equipped a laboratory and initiated a development program on diatomaceous filter aids and fillers for Eagle-Picher Co., in Joplin, Mo.

For the past few years, he has served as a service and sales engineer for the Eimco Corp. in that company's Eastern district office in New York City.

Hollister Sees 15% Rise for 1959 Aerosol Product Totals

A RECORD year for the production of pressure cans is the forecast of Robert Hollister, sales executive of the American Can's Canco Division. He predicts "the biggest year ever in the aerosol industry, with the production of 555 million pressure cans. This is a 15% increase over the 483 million units produced in 1958."

Mr. Hollister said last year's increase over 1957 production of 420 million cans was due largely to the introduction of pressure-packed toothpaste. Among the other products introduced last year "that contributed to the increase and should prove promising both this year and in years following," he suggested vitamin syrups, hand creams, flavored toppings, liquid soaps, auto waxes, and furniture polish.

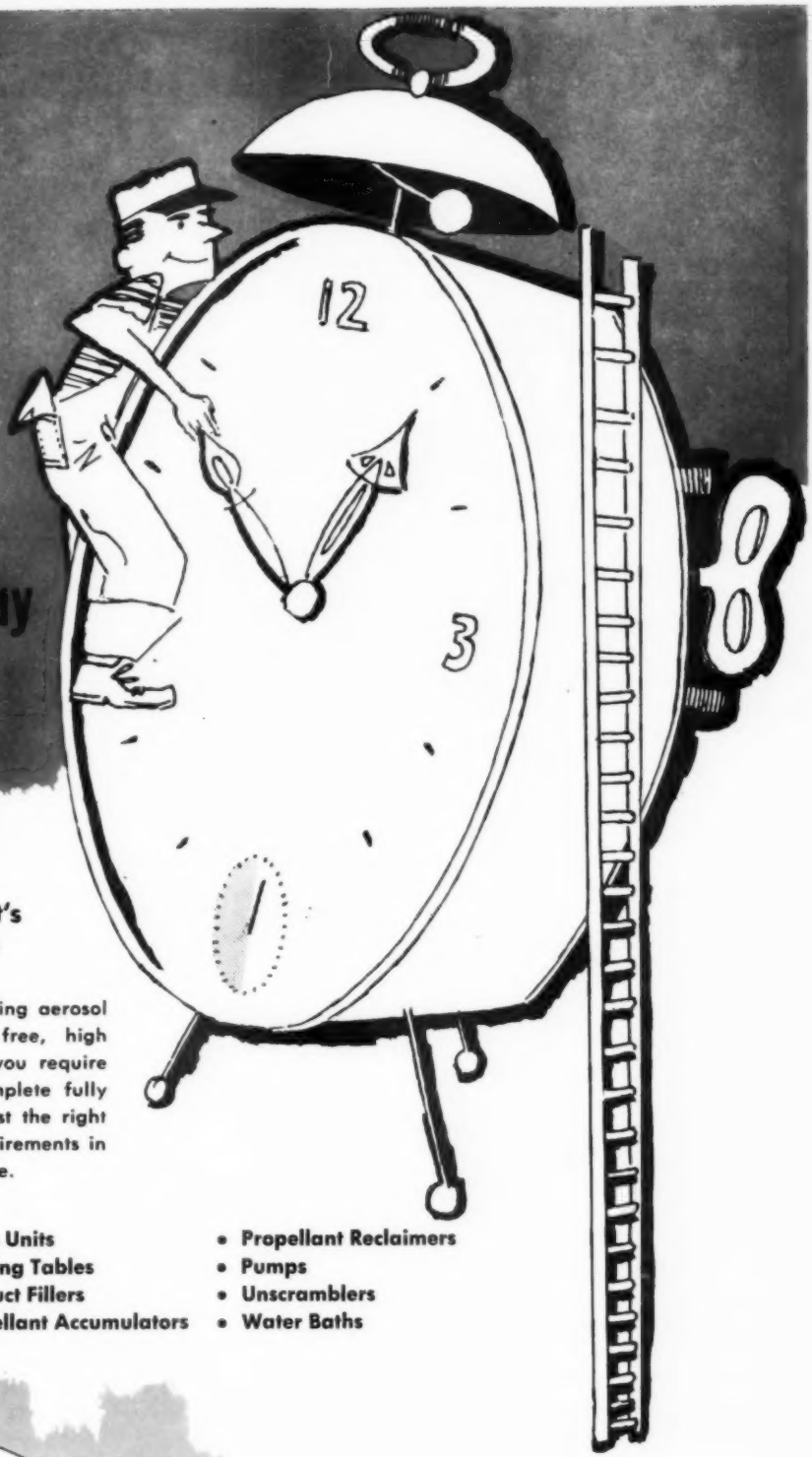
As far as 1959 is concerned, Mr. Hollister thinks that insect repellents, dessert toppings, and drugs (particularly vitamins) will be the leading growth items. "Cosmetics and toiletries, some of which probably will be seen for the first time in aluminum aerosols, also will contribute to the expected increase to 555 million cans in 1959," he said.

It was noted that slightly more than 80% of the expected can production will go to market containing non-food items. The ratio of food to non-food products in aerosols has remained constant during increased overall production. About 70 million food cans were made in 1957; 85 million in 1958 and the probability is for about 95-100 million in 1959.

Appropriately "topping the field" in the food category are flavored (primarily chocolate) and whipped dessert toppings. "Thus far the packing of other food products has been of a negligible amount, though we should see the introduction of spreads, sauces, syrups and similar items in the not-too-distant future," the Canco executive said. Mr. Hollister pointed out that technical problems slowing down the commercial introduction of such items should be eliminated by anticipated developments in both containers and formulations of products.

wait just a minute

before you buy any aerosol filling equipment



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J-G custom built pressure filling aerosol equipment means trouble free, high speed production. Whether you require an individual unit or a complete fully automatic line, you'll find just the right equipment to meet your requirements in the J-G quality-engineered line.

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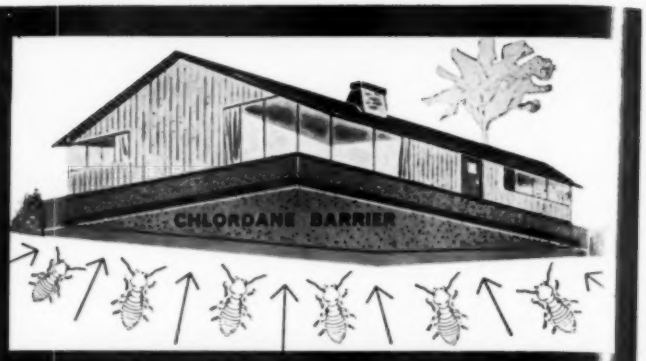
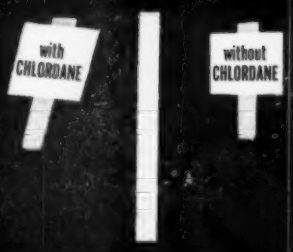
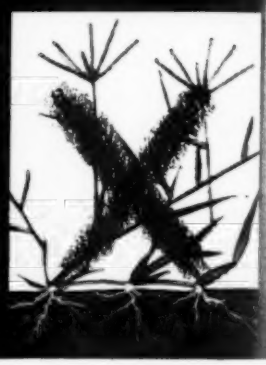
A SPECIAL REPORT

The demand for Chlordane has jumped sharply in the past year. Distributors, Dealers, and Pest Control Operators are finding that the mere mention of Chlordane is a tremendous selling aid. This special report explains why Chlordane's many long-time friends suddenly have a tiger by the tail.







How Chlordane helps make your business more profitable!

RECOGNITION- A recent independent survey showed that Chlordane has by far the highest consumer recognition of any patented insecticide chemical. Close to 70% of people surveyed know what it is and what it's used for. If Chlordane appears on a label, or if a Pest Control Operator mentions that he uses Chlordane, 7 out of 10 customers know that they are getting a chemical of established effectiveness. In this way, the name "Chlordane" adds to the value of insect control products and services.

RECOMMENDATIONS—Chlordane has proven to be exceptionally versatile. Year by year, the uses for which it is recommended have increased. State and U.S.D.A. publications list it for the control of many of the most troublesome insects found in the United States. These recommendations influence customers to seek Chlordane specifically, instead of just "an insecticide".

RESIDUAL ACTION—To Pest Control Operators especially, Chlordane's long record of residual effectiveness is like money in the bank. Homes treated by PCO's more than 11 years ago are still getting 100% effective residual protection against termites from the original Chlordane application. No other insecticide has such a long record of residual effectiveness.

ECONOMY—Chlordane continues to be the most economical chemical widely recommended for termite control. It is equally economical for lawn and garden insect control.

PHYSICAL PROPERTIES—Chlordane is alkali stable, non-crystalline, and has no offensive odor. These properties give Chlordane longer residual action in all types of soils, and make it much more desirable for use around dwellings.

NEW MARKETS—Demand for Chlordane has increased steadily. It has long been America's leading lawn and garden insecticide and termite control chemical. In the past year, though, demand has skyrocketed. This is partly because of Chlordane's reputation, and partly because of new markets that have developed recently. In the lawn and garden field, Chlordane has become one of the most popular crabgrass control chemicals. Pest Control Operators have also gained new business by offering crabgrass-insect control service. In the pest control field, Chlordane's effectiveness has made it an important part in the big boom in pre-treatment of construction for termite control.

PROMOTION—Because of its versatility and effectiveness, Chlordane receives a great deal of publicity. In addition, Chlordane is extensively advertised in mass media and local newspapers. Pest Control Operators, formulators, distributors, and dealers also receive strong sales support. Promotional materials, incentive plans, educational and news services and other free materials help to increase Chlordane's profitability at all levels.

BUILD YOUR BUSINESS WITH CHLORDANE—By featuring Chlordane in your own selling and promotions, you will be able to gain the full advantage of its popularity. Write for complete information about free Chlordane programs for profit!

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ATI Names Prussin, Mrs. Walsh to Exec. Posts

THE election of two vice presidents and other major executive appointments at Aerosol Techniques, Inc., were announced by the Bridgeport, Conn., aerosol packaging company earlier last month.

The new vice presidents are Samuel B. Prussin and Ethel F. Walsh. Mr. Prussin will direct all technical operations, including research and development, quality control and new products, and sales development. Mrs. Walsh will supervise and co-ordinate production services, sales services and purchasing.

Prussin

Mrs. Walsh

David Benjamin has been appointed assistant to the president, with additional responsibilities for special projects in current and future company activities. The other key appointment announced is that of Val Rossetti as controller and financial officer. Both Mr. Benjamin and Mr. Rossetti will join ATI's executive committee.

Rossetti

Benjamin

One of the best-known figures in the aerosol industry, Mr. Prussin was formerly with Rexall Drug Co. and Johnson & Johnson. At Aerosol Techniques as director of new products and sales development he has headed much of the company's recent expansion in the field of pressurized pharmaceuticals and topical medicine.

Mrs. Walsh, one of the ranking women executives in the American chemical specialties industry, has spent practically her entire professional career in aerosols. She was formerly with Bridgeport Brass Co., Connecticut Chemical Research Corp. and Propel Chemicals. With Aerosol Techniques since its founding, she has been director of sales services.

Mr. Benjamin was formerly with Becker & Becker, management consultants. Since joining ATI two years ago he has been director of purchases.

Mr. Rossetti has been in charge of accounting at Aerosol Techniques since the founding of the company and has been responsible for the development of special systems of cost analysis and estimating.

•

Rutgers Perfumery Course

A two-week residence course in perfumery and essential oils will be held at the New Brunswick campus of Rutgers University in July. It will be conducted by Steffen Arctander, noted perfumer of Colgate-Palmolive Co., and will consist of lecture and laboratory sessions on perfumery raw materials, economics in perfumery, perfumery compounding and techniques, and the identification and evaluation of perfumery materials. Cost of the course is about $200.

•

Abrams to Warner-Lambert

George J. Abrams, former vice-president in charge of advertising at Revlon, Inc., has been appointed president and chief executive officer of the newly-formed Cosmetics and Toiletries Division of Warner-Lambert Pharmaceutical Co., Morris Plains, N. J. As head of the new division, he has assumed full responsibility for the company's "Richard Hudnut," "DuBarry," and "Sportsman" lines of women's and men's cosmetics and toiletries.

•

Pepsodent Names Molbegott

The Pepsodent Division of Lever Brothers Co., New York last month named Seymour Molbegott to the newly-created post of sales promotion manager. He was sales plans coordinator in the same division.

Container Decoration Stressed

The importance of close cooperation betwen label designers and the art and lithography department of aerosol container manufacturers was stressed recently in a talk by Kenneth Straub, art director of the Can Division of Crown Cork and Seal Co., Philadelphia.

'If there's one trend I'd like to see," he said, "It's toward a closer working relationship betwen the label designer, whether it be the marketer's advertising agency or his design consultant, and the container manufacturer's art and lithography department."

"Better cooperation here," Mr. Straub emphasized, "can eliminate many of the costly and time-consuming problems created when a label is designed without thought as to whether it can actually be applied to the container or not. What looks beautiful on the artist's drawing board sometimes turns out to be impractical either by flat or cylindrical lithography."

He pointed out that there is an increasing use of metallic printing ink and labels showing a photograph of the product in use rather than artwork or design, particularly in the case of aerosol food containers. These new processes result in attractive containers that are already proving their strong shelf appeal, he said.

"However, it is important for manufacturers to know both the scope and the limitations of container lithography," he remarked. "So far as Crown Cork and Seal is concerned, we welcome visits by label designers and design consultants who want to investigate and discuss the problems involved. It is only in this way that we can develop better service for our customers.

•

Packaging Machinery Show

The "Sold Out" sign has been raised above The Packaging Machinery Manufacturers Institute Show of 1959. A. R. Stevens, chairman of the show committee, reports that every exhibit space shown on the New York Coliseum floor plan has been reserved by manufacturers of packaging machinery and related packaging materials.

The vice president of Elgin Manufacturing Co. indicated that 153 exhibitors will occupy 64,000 sq. ft. of exhibit area for this November 17-20 marketing event. He also pointed out that more than 90% of the exhibiting companies were exhibitors in past PMMI Shows.

The PMMI Show of 1959 comprises an assemblage of new and improved types of packaging machinery, and packaging materials, said the show chairman. He emphasized that while a wide variety of firms had expressed interest in displaying products, only those concerns producing packaging machinery and directly related materials were allowed to make space reservations.

This packaging machinery meet is sponsored by one of the larger associations of manufacturers in the United States. There are 71 member-companies in the Packaging Machin-

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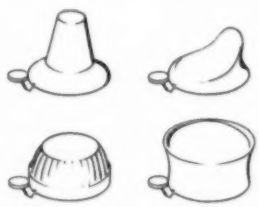
TRY *EZ lift*

It's E Z!

- Press and remove cover.
- No more prying, pulling or squeezing
- A press of the finger, and the patented E Z lift cover is off
- Will not break . . . **reusable** for the life of the can
- Eliminate: Gas loss from prying under valve mounting cup
- Eliminate: Product and gas discharge from striking nozzle in removing dust cover

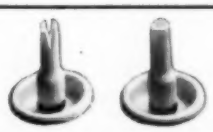
PRIVATE LABEL

E-Z lift principle fits any dust cover style.



Foam, Food and Liquid flow valves available

Our "Variable Orifice" assures perfect rate of flow control— fast or slow / thin stream or heavy flow



SUPER WHIP VALVE CO.

4101 North Rockwell, Chicago 18, Illinois / JUniper 8-6300

ery Manufacturers Institute, Inc. This group is working closely with the Packaging Institute, which is holding its 51st annual Packaging Forum in New York during the week of the PMTI Show.

•

Hill to Crown Glass

Robert G. "Bob" Hill, former sales manager of Mojonnier Associates, recently joined the sales staff of Crown Glass Corp., Chicago, as sales engineer and packaging consultant. Crown Glass located at 600 W. Hubbard Street, Chicago 10, is engaged in the container and packaging field.

Mr. Hill's mechanical engineering background in the packaging field extends back the past 14 years. He will operate generally in the Midwest area.

•

Penick Realigns Execs

Implementing its recently announced realignment of sales and service divisions, S. B. Penick & Co. last month announced the following appointments:

Barclay E. Mackinnon, formerly vice-president of the New York Quinine & Chemical Works, Inc., has been appointed vice-president of Penick in charge of the new NYQ Chemical Division.

Harold A. Meyer, vice-president, is now in charge of the Botanical & Allied Products Division, with William W. Bell, vice-president, as assistant manager in addition to his responsibilities for this division's domestic products and all cultivation projects.

Frank Seeland, vice-president, continues as manager of the newly-named Farm Chemical & Insecticide Division, which has added antibiotic feed supplements to its line of products.

Rudy P. Neptun, formerly vice-president of the New York Quinine & Chemical Works, Inc., has been appointed vice-president with special responsibilities in sales development and promotion.

William A. Thawley, former sales manager of the New York Quinine & Chemical Works, Inc., has been appointed director of sales coordination for the entire Penick organization. He will have charge of all outside sales representatives as well as the coordination of the sales policies of the company's three marketing divisions.

James J. Verde, formerly assistant sales manager of the New York Quinine & Chemical Works, Inc., has been appointed sales manager of the NYQ Chemical Division.

•

Collapsible Tubes Up Again

Reversing the downtrend that marked the closing months of 1958, (when aerosols cut sharply into dentifrice sales) shipments of collapsible metal tubes for packing rose 3.7% in January as compared with January a year ago, the Collapsible Tube Manufacturers' Council reported last month. Reflecting substantial gains in tubes for dentifrices, which had been affected initially by aerosol packaging, January shipments totalled 93,458,600 units, compared with 90,134,208 in January, 1958.

Of the total, tubes for dentifrices, accounting for 50.17% of the total, against 49.49% a year ago, rose to 46,884,240 as compared with 44,710,192 in January, 1958.

Gains were also shown in tube shipments for medical and pharmaceutical products, which rose 5.7% to 20,013,696 units. In tubes for cosmetics, an increase of 11% was shown to a total of 7,539,120 units. Shipments for shaving cream and household products declined moderately from January, a year ago.

•

Fancy Food Show Set

The Fifth Annual National Fancy Food & Confection Show, sponsored by the National Association for the Specialty Food Trade, will be held Aug. 23-26 at the Hotel Astor in New York City. The show is produced and managed by the Charles Snitow Organization, New York.

•

Donrico Names Del Schmidt

Donrico, Inc., New York, aerosol label designers and printers, last month named Del Schmidt, former design coordinator, to the post of vice-president.

STANDARDS MAINTAINED • FORMULAS PROTECTED • QUALITY AEROSOLS

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private label and contract AEROSOL PACKAGING

using inert compressed gases & all conventional propellents

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pace for PRODUCTION RUNS

pace for SAMPLE RUNS

pace for PRODUCT FORMULATIONS

pace for PACKAGE DESIGN

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over 100 use-tested formulas on hand

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Spectacular in selling perfumes Available for profitable new applications

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TRADEMARK

Purse-size aerosol

Get that important competitive edge with this glamorous dispenser... multiply sales by having your customers carry and use your product away from home!!

Refillable—long cap to prevent accidental activation—can be printed with your own designs—available in highly polished brass cap, plastic or low-cost coated paper tube.

Is Your Product on This List?

Nasal Sprays
Inhalants
Topical Antibiotics
Prescription items
Burn Preparations
Poison Ivy Remedies
Spray Bandages
Mouth Washes
Deodorants
Talcum Sprays
Hair Sprays
Athlete's Foot Remedies
and of course—*Perfumes!*

Then You Can Use Touch-N-Spray Profitably

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Kry on Ships Aerosol Products to Moscow Fair

Rose l mpton, world renow ed soprano, and a ice-president, in ch ge of public relatio s for Krylon, Inc., N rristown, Pa., and er husband, Dr. V lfrid Pelletier, o era and symphon conductor, checki g final details o shipment of Krylon spray enamels o route to the U. S Exhibit at Mosco , Russia. Krylon Inc. was selected y the U. S. Govern ent as one of 65 A erican companies o display at the A erican National Exhibition in Moscow this summer, o monstrating how A erica lives.

Island Names Sales Agents

Island Equipment Corp., Miami, last month named three sales agents to represent the company's line of conveyors, unscramblers and other container handling equipment. The three are:

Manufacturers Sales Co. of Detroit —to cover the state of Michigan and Lucas, Fulton, Williams, and Henry Counties in Ohio.

Schroeder McKey Co., Milwaukee, to cover the states of Minnesota and Wisconsin.

Don Lyttleton Packaging Machinery Co., Houston, to cover the states of Arkansas, Texas, and Louisiana.

•

Shepherd to Hospital Board

H. R. Shepherd, president of Aerosol Techniques, Inc., Bridgeport, Conn., has been elected to the Board of Directors of the Park City Hospital in Bridgeport.

Mr. Shepherd has been active in local community affairs, in addition to his participation in the aerosol field.

•

Ship "Ucon" All Over U. S.

Deliveries of "Ucon" brand propellants are now being made to aerosol fillers and marketers throughout the nation, according to an announcement made by the Fluorocarbons Division of Union Carbide Chemicals Co., Division of Union Carbide Corp., New York, direct from Carbide's new fluorocarbons production plant in Institute, W. Va.

Several "firsts" were recorded in the past few weeks in this connection:

* First tank car shipment of "Ucon" propellants was made to Peterson Filling & Packaging Co. in Danville, Ill.
* First shipment of the product in the South was made to the Aerosol Corp. of the South.
* First shipment in Ohio, to Sprayon Products, Inc.
* First shipment in Pennsylvania, to Thomasson of Pennsylvania, Inc.
* In New Jersey, Sun-Lac, Inc.
* In Massachusetts, Armstrong Laboratories.
* In Connecticut, Power-Pak, Inc., and Aerosol Techniques.
* In Maryland, Stalfort Pressure-Pak, Inc.
* In New York, National Spray Can Filling Corp.

E. E. (Rusty) Husted, sales manager for "Ucon" propellants, said that a system for prompt delivery of propellants has recently been set up at Hillside, N. J., and Whiting, Ind. A fleet of tank trucks is operating out of these two centers. The fleet is being backed up by other trucks delivering

Reed Research Corporation

AEROSOL CONSULTANTS

Now Offering a Custom Filling Service

A complete custom filling section specializing in carefully controlled runs has been added to the extensive research and development facilities at Reed Research.

These custom filling facilities are capable of filling all types of standard aerosol containers with the propellent best suited to the product.

REED RESEARCH CORP.

MILL ST. SHELTON, CONN.

Phone: Regent 5-4696

THE SAFEST PATH TO SUCCESSFUL PRODUCTS

L & F Appoints Three

The Tussy Cosmetics Division of Lehn & Fink Products Corp., New York, last month announced a series of appointments. Heading the list is that of William P. Schliemann, assistant sales manager, who has added responsibility for sales forecasting and marketing research to his present duties.

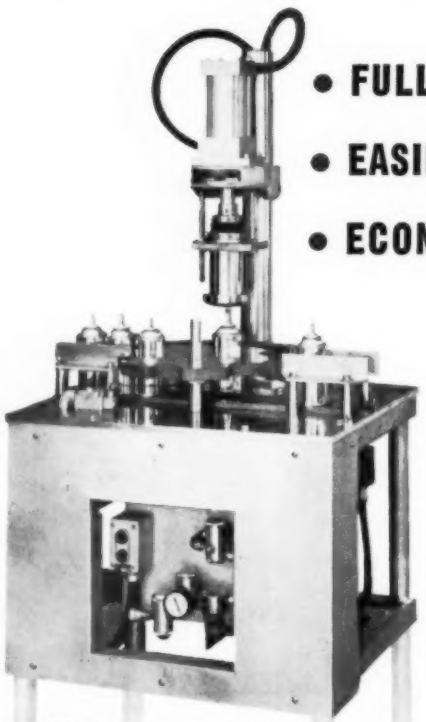
Neil B. Barkell, who was formerly with Helene Pressl, Inc., and Lancome Sales, was named sales administrator and Robert Muecke, formerly with Schenley Industries, has been appointed sales promotion manager.

•

B-M Purchases Clairol

Clairol, Inc., New York marketer of hair coloring preparations, has been acquired by the Bristol-Myers Co., also of New York, and will operate as a Bristol-Myers subsidiary. Clairol operates a plant at Stamford, Conn. and markets its products, including an aerosol line, throughout the U. S.

NEW AEROSOL CAN CRIMPERS



• FULLY AUTOMATIC
• EASILY ADJUSTABLE
• ECONOMICAL

NALBACH
Model I.H.A.C.
CRIMPER
and
CODE DATER

FEATURES:

1. Crimps and Code Dates simultaneously.
2. Speeds up to 70 cans per minute.
3. Adjustable for both depth and height of crimp desired.

Many other features. Write for free literature on this machine and other aerosol equipment: Adjustable Crimping Heads • Valve Feeders • Code Daters • Gassers and Shakers • Laboratory • Hand Operated • High Speed Automatic Units.

JOHN R. NALBACH ENGINEERING CO. INC.
6139 OGDEN AVENUE CHICAGO 50, ILLINOIS

Egg Spray Patented

Preserving eggs by applying a spray of oil and diluent from an aerosol spray can is covered by Patent 2,876,110 which was issued March 3, to Liqua Mix Inc. of Indianapolis, Ind. The oil is contained in the aerosol can together with a diluent and propellant which has bactericidal properties so that the oil is sure to be sterile when applied.

Eggs can be treated as they are gathered, and require only a quick light spray from the aerosol over the large end as they are placed in the case. No special equipment is needed, and the treatment is claimed to cost less than five cents per case.

The patented product is available under the trade mark "Sta-Good," and is distributed by the Anderson Box Co., P. O. Box 1052, Indianapolis.

•

Airco Nitrogen Plant

Announcement has been made by Air Reduction Sales Co., a division of Air Reduction Co., Inc., New York of the completion of a new oxygen and nitrogen plant at Denver, Colo. The new plant is the first major gas-producing installation whcih Air Reduction has built in the general area.

William O. Brown is in charge of all Airco operations at Denver. Leo C. Jones, formerly superintendent of the company's oxygen plant at Hobbs, New Mexico, has been appointed superintendent of the new facility.

•

Henry Bristol Dies

Henry Platt Bristol, chairman of the executive committee of the Bristol-Myers Co., New York, died late last month at the age of 70. Mr. Bristol joined the company, of which his father was a founder, in 1908, was president from 1928 to 1949, and was board chairman from 1949 until last year.

•

Radford to Perry Brothers

Perry Brothers, Inc., Woodside, N. Y. supplier of essential oils, has appointed G. W. Radford to be the company's Canadian sales representative. He was formerly with the Green Cross Division of the Sherwin-Williams Co.

Equipment–Processes–Bulletins–

Synthetic Bergamot Developed

Reconstituted Oil Bergamot, said to be the first essential oil ever to be successfully produced entirely by chemical synthesis in commercially available quantities, has been announced by Fritzsche Brothers, Inc., New York essential oils producer.

The synthetic bergamot is not subject to price fluctuation, and costs only about one-half as much as natural bergamot oils. Tests indicate that in 1% solution it affords "better solubility in various aerosol propellants than does the genuine oil which sometimes shows separation of insoluble materials." Fritzsche Brothers also advises that the possibility of valve clogging is avoided by using the more soluble reconstituted oil.

•

Liquid Handling Bulletin

A new bulletin has been published by the Ertel Engineering Corp., Kingston, N. Y., describing the firm's varied line of liquid handling equipment. It is profusely illustrated and shows the many types of Ertel filter sheets and filtering equipment. Application tables, flow rate and filtration area charts applicable to the various filter models are included. Bottle fillers, pumps, and mixers for the chemical, drug, cosmetic, and allied industries are described and illustrated.

Catalog 58 can be obtained by writing directly to the company.

•

Aerosols for Sheep Disease

Chloramphemicol in aerosol form has proven highly satisfactory for the treatment of sheep foot rot, a common sheep ailment in England. E. H. Richmond, of the Animal Health Division, Maidstone, England, reported on the new aerosol to a regional agricultural meeting in Biddenden in March. He said use of the pressurized form of medication obviates putting the sheep flock through a foot bath, and offers a "perfectly satisfactory" means of control.

Sheep foot rot was demonstrated to cause a weight loss to lambs of about nine and a half pounds per head in eight weeks, a loss of about $1.40 per head.

•

Canco Aluminum Container

An extruded aluminum can has been added to American Can Company's line of aerosol containers, it was announced early last month. The container, to be manufactured by the company's Bradley-Sun division, will be in production by the end of the year, the company said. First production is expected to be in the six-ounce size.

Canco said its move in adding an extruded aluminum can to its aerosol line was taken because of several advantages offered by aluminum for packaging cosmetics, pharmaceuticals and dentrifrices, which are expected to be the leading uses for the new can.

Elimination of the soldered side seam margin, the company said, makes the container esthetically more pleasing and thus more acceptable as a container for hair sprays and fine cosmetics. Another leading feature, linked with the elimination of the side seam, is the use of all-around lithography. Cans are lithographed, after forming, by offset presses.

An additional advantage is the weight saved in shipping. Canco said the weight of 1,000 six-ounce aluminum pressure cans is approximately 50% that of the same number of tin plate pressure cans. It was noted that one of the can-making industry's major stumbling blocks in the development of aluminum containers has been the adherence of interior coatings. Canco, the nation's largest can-maker, with extensive experience in this area, claims it now has the problem solved.

Price of the new aluminum pressure can is competitive with other extruded aerosols now on the market, Canco said. However, the company pointed out, the price is higher than the conventional tin plate can due to higher material costs.

•

Garden First Aid Kit

An aerosol container for household use is one of the principal units included in a garden "first aid kit" recently introduced on the Canadian market by Chipman Chemicals, Ltd., Hamilton, Ont. Each kit consists of a corrugated board carrying case with a permanent handle and slide opening. In addition to the "Ridsect" aerosol, it contains a tin of ant and grub killer, a pumper dust gun containing an all-purpose flower and garden dust, and a sifter-top tin of a rotenone-based insecticide for use on edible vegetables.

Each kit also contains a booklet called "Better Gardens," which gives recommendations on how to control most garden insects.

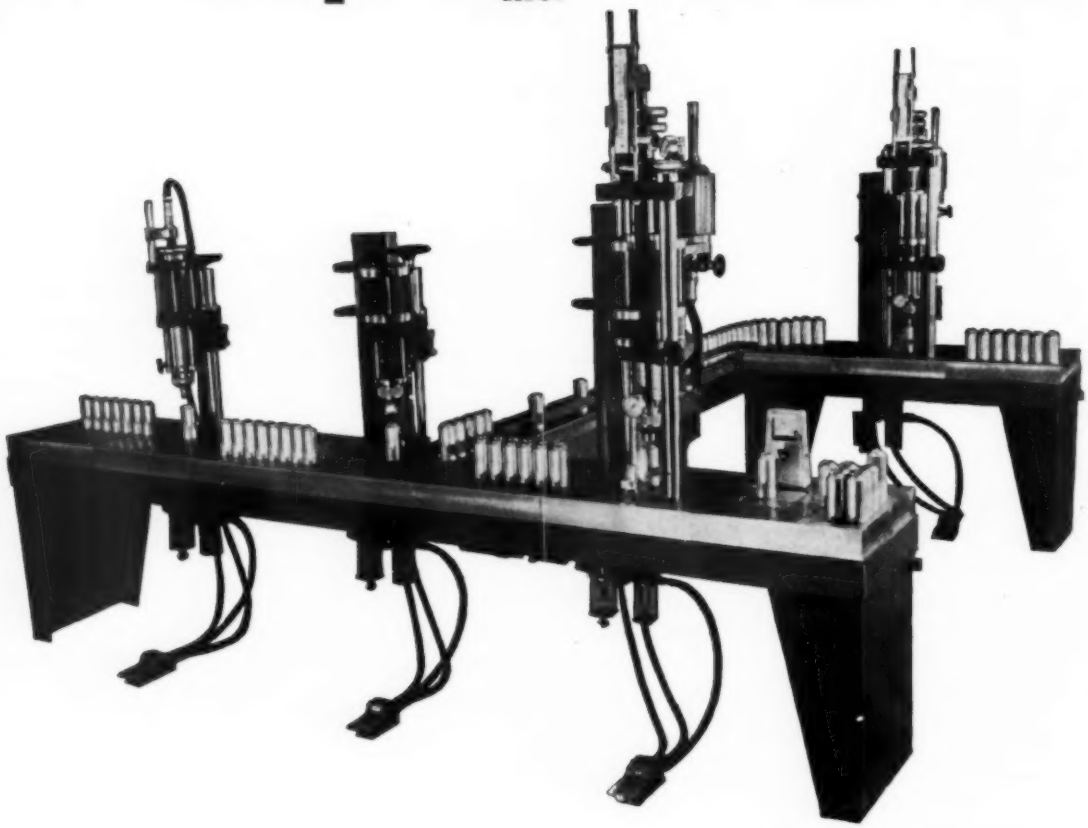
•

Power-Driven Case Printer

Kiwi Coders Corp., Chicago, has announced a new power-driven case printing machine which will operate at from 25 to 50 units per minute. Called the "Model 4296", it handles flat cartons 6 x 10" to 32 x 44". Feature of the unit is an automatic counter and centering device.

druk pak inc.

Supplying internationally for aerosols.



druk pak

Manufacturer:

Johann Waldherr,
Machine Builder
Kafertaler Str. 162,
Manneheim, Germany

Sales Representatives:

druk-pak, inc.,
Merkur Str. 36,
Zurich 7, Switzerland

Publishers of "European Aerosol Survey' a quarterly periodical and "Aerosol Packaging" an Exposé covering all aspects of the aerosol package.

A WM-DP semi-automatic Pressure Filling Unit with Product Filler and Valve Clincher serving two Propellant Charges. These sturdy and efficient machines cover your loading requirements, large or small. Some details on the

Propellant Charger WM-DP 340:

Stainless Charging Cylinder, adjustable capacity— 5 to 32[illegible] g.
Charge Tolerance, under 100 g, fractional—over ± [illegible] g.
Operating Pressure, according to valve 6 to 8 Atü.
Gas Loss, less than 1%
Capacity: The above line with two Propellant, Chargers does over 8500 twelve ounce units per 8 hr. day. In six ounce units, according to valve and charge, 10 to 13 per minute.

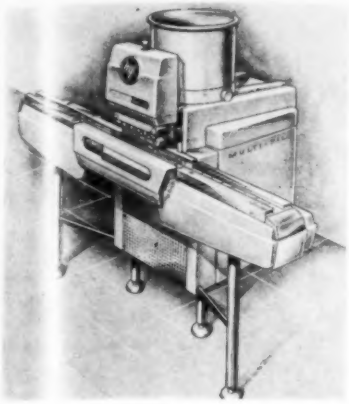
Other WM-DP Products:

Magaetic Chain Link aad Tank Type Test Baths, Conveyor Lines and Tracks, Mufflers and Fast Exhaust Units, Propellant Pumps, Purgers, Complete Line of Laboratory Equipment, etc.

Valves for metal cans, glass bottles, foams and small (50 mlg) metered quantities. All valves are quick gassing, pressure fillable.

Concentrates, a large iine of tested product, some for dilution up to 1:9.

Pharmaceutical Filler



The Donofrio Engineering Staff, headed by the Donofrio Brothers of Toledo, Ohio, for many years developers and manufacturers of packaging machinery for the pharmaceutical trade have announced a new pharmaceutical filling machine which is said to accurately meter and fill liquids and semiliquid materials into small containers of different sizes and shapes at speeds of from 10,000 to 28,000 units per hour.

This Multi-Fill machine is being offered to the pharmaceutical, cosmetic and food manufacturing firms through the Multi-Fill Machine Co., 340 North Westwood Ave., Toledo, Ohio.

•

British Automatic Labeler

Six-ounce aerosol cans and containers of smaller sizes can be labeled automatically by use of a "Newman Model 4B" labeller, recently introduced by D. Trapow & Co., 113 Regent's Park Road, London N.W. 1, England. Speeds of up to 40 labels per minute can be attained on large labels, and up to 2400 an hour on smaller ones. The machine strip gums the ends of the labels and may be equipped with an attachment to print code on the ungummed portion of the label.

•

VCA Issues New Price List

A new price list, effective Jan. 1, has been prepared by Valve Corp. of America, Bridgeport, manufacturer of aerosol valves and fitments.

Available upon request on company letterhead, the list includes prices per order of 25,000 for metered valve components, and per order of 50,000 for one-inch opening can valve and 20mm glass bottle valve components. Besides basic valve components, items listed include a variety of operators, stainless steel inner containers, Mist-Tops, buttons, and other units.

•

New Abstract Publication

Selective Abstracts, Inc., New York, a newly-formed organization in the field of technical abstracts, last month announced plans for a new type of bi-monthly abstract publication that will cover six industries. The six industries are drugs, cosmetics-toiletries-pharmaceuticals, foods, plastics, paints, and advertising. Each issue is prepared by experts currently working in the subject field, and the literature covered will include more than 1000 trade and technical journals affecting each subject area.

Editorial director of the new publication is W. Phillip Leidy, technical library consultant; managing editor is Dr. Anne D. Duca, chief librarian of the Chemists' Club in New York. The new company will maintain offices at 855 Ave. of the Americas, New York 1.

•

New British Aerosol Line

Saga Plastics, Ltd., London, has introduced two new aerosol products for the British market, both in six-ounce cans. The new products are "Nofly", a household insecticide, retailing at 53 cents; and "Spring Air", a germicide, bactericide and air deodorant retailing at 48 cents.

•

Work Transfer Devices

A new line of work transfer devices that may be applicable to hand assembly operations in valve manufacturing and custom filling has been announced by the Alden Systems Co., Westboro, Mass. The new units employ the "building block" system, whereby each may be quickly set up or dismantled for next use.

Included in the new line are small-size conveyors, travel tracks and trolleys, harness cable boards, transport dollies, unit integral conveyors, and bulky units and electro-mechanical assemblies of similar types.

Alpine

NEW
Fragrances
and
Masking Scents for
Aerosol Products Are
Continually Developed
in Our Modern
Aerosol Laboratory

Up-to-Date Cosmetic
and Chemical Development
Facilities Are Available

Send for Our New
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ALPINE
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Metuchen, N. J.

LESS COVERAGE NEEDED ON KLM

THE WORLD OVER
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ROYAL DUTCH AIRLINES

Reduce crating — and save money several ways — when you airfreight via KLM. Your cargo needs less protection because of KLM's efficient ground handling, skilled loading, frequent flights. This cuts crating costs, weight charges, insurance and customs fees. Remember, because KLM cargo men are career men, KLM air cargo is never out of expert hands.

KLM flies direct from New York City, Houston, Miami and Montreal to points the world over.

KLM Royal Dutch Airlines, 430 Park Avenue, New York 22, New York

Colton Liquid Filler

A new Colton high-speed precision liquid filling unit featuring a new combination plunge-fill and container-centering nozzle design that assures clean, efficient filling of glass, plastic, or metal containers has been announced by Arthur Colton Co., 340 E. Lafayette, Detroit 7, Mich.

This unit includes a multiple liquid filler with patented "Exactometric" metering cylinder and valve assemblies that maintain filling accuracy to within 1% on each fill, a bottle conveyor, and an air-operated escapement; all mounted on a fabricated steel table. Clean, drip-free filling is provided by an adjustable 'suck back' control on the "Exactometric" metering cylinder, plus positive centering of the container for the plunge-filling operation.

Each nozzle has mounted on it spring-loaded plastic aligners that contact the container as the nozzle assembly is lowered by a drum cam mechanism driven from the filler motor drive. Further downward travel of the nozzle assembly causes the nozzles to enter the container for a mess-free filling operation. Centering of the containers for the filling operation is thus independent of minor size variations in the containers themselves.

The conveyor is a plain-surface, single-chain type having Nylon, steel or stainless steel flights. Lengths are made to suit the application. The conveyor drive sprocket is powered by a right-angle gearmotor equipped with a starter switch. Conveyor speeds of up to 80 feet-per-minute can be had by changing drive sprockets.

•

Synthetic Rose Chemical

A new synthetic aromatic chemical has just been announced by Givaudan-Delawanna, Inc., New York. To be marketed under the tradename "Folrosia," the new rose chemical is said to have a crisp, leafy-rose odor which can be described as a "broad spectrum" aromatic since its uses cover a wide range of perfume types.

"Folrosia" is described as giving a realistic flowery effect and has been found to have exceptional strength and stability. With "Folrosia," new and beautifully realistic rose and other compositions can be created. Samples and technical information are available from the company at 321 West 44th Street, New York 36, New York.

•

Seamless Aluminum Bottles

Standard stock seamless aluminum bottles from one-eighth ounce to 768-ounce capacities are described, along with specifications, and ordering information, in a new four-page brochure issued by American Aluminum Co., Mountainside, N. J.

A helpful list of material that can be packaged, shipped or stored in aluminum, without hurting the property value of either, is also included. Among the materials in this list are benzene hexachloride, butyl alcohol, glycerin, ethylene glycol, ketones, lacquers, liquid nitrogen, cosmetics, and many others.

D&O Odor Masks

A new brochure on the second series of "A-to-Z" odor masks introduced recently by Dodge & Olcott, Inc., 180 Varick Street, N. Y., has been issued by the company and is available on request. The new brochure gives information on properties, applications and types available, and prices.

The new all-purpose deodorizing compounds are described as being specially designed for "the most difficult deodorizing problems." Each provides an end-fragrance specifically adapted to the product to be covered and reodorized according to manufacturer preference.

•

New Boehringer Booklet

A beautifully-illustrated booklet describing the services and facilities of C. H. Boehringer Sohn has been issued by that company's headquarters at Ingelheim Am Rhein, Germany. Boehringer is a leading German marketer of household chemicals (some in

Here is a line of aerosol fragrances specially developed by our Perfume Laboratories for pressure-packed items. They'll efficiently mask even the heaviest of chemical odors and give your preparations a pleasing fragrance that adds an effective "plus" to their sales appeal.

You can't afford to miss this terrific combination of fine fragrances, excellent covering power and real economy! Why not send for samples and convince yourself!

FOR ROOM DEODORANTS

Cool Mint #3586 • Clover Blossom #3630 . Blossom Bouquet #3702

FOR INSECTICIDES

New Mown Hay #3563 • Apple Blossom #3631 Diascent

Prices, samples and full information gladly supplied.

AROMATIC PRODUCTS
INCORPORATED
235 Fourth Avenue, New York 3

CHICAGO • DALLAS • MEMPHIS • PITTSBURGH • LOS ANGELES • BOSTON

Thomasson welcomes truckload of new UCON Brand Propellant. Flanked by his officers, James W. Bampton (right), President of Thomasson of Pennsylvania, Inc., greets Union Carbide Chemicals Company's E. E. ("Rusty") Husted and Arthur W. Chivvis on receiving his first shipment of UCON Propellant 12. Shipment was from CARBIDE'S bulk station at Hillside, N. J. Thomasson fills a widely varied line of aerosols —including insecticides, repellents and hair sprays—in its new 70,000 square foot plant at Norristown, Pa., and markets famous *Krylon* products.

For information about America's newest aerosol propellants, write: UCON Propellants, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, New York.

UCON and UNION CARBIDE are registered trade marks of Union Carbide Corporation.

For aerating food products

S. S. WHITE® NITROUS OXIDE • CARBON DIOXIDE MIXTURES for...

Whipping Cream • Mayonnaise • Salad Dressing • Vegetable Oil Topping

aerosol form), insecticides, toiletries and cosmetics, and pharmaceuticals in both bulk and consumer packaged products. Among Boehringer's subsidiaries are Dr. Karl Thomae GmbH., Cela, GmbH, and Olivin. Boehringer also has the production and marketing rights for Chas. Pfizer and for Geigy.

White Metal Unveils New Aluminum Container

A new standard size one-piece aluminum aerosol container was introduced last month by White Metal Mfg. Co., 1012 Grand Street, Hoboken, N. J. Supplied with "Epon" lacquer and other internal lining and with an outer decoration of a base enamel and multi-color printing, the new container is said to be 100% leakproof.

New "Aldor" Brochure

Alpine Aromatics, Inc., Metuchen, N. J., has announced publication of a new illustrated brochure, detailing technical recommendations on industrial deodorants and aerosol fragrances. The trade mark "Aldor" has been selected for this new line of products.

Copies of the brochure are available upon request to the company.

•

Gogarty Heads Tombarel

Arthur C. Gogarty, former head of the company's Sales Division, has been elected president and treasurer of Tombarel Products Corp., New York essential oils producer.

Gibberellin Aerosols

(From Page 45)

that did occur was minor in nature and was limited to the non-lacquered tin-plated cans. The concentrates were all clear and had very little color.

It is still recommended that containers used for gibberellin aerosols should be lacquer lined. Based on tests from the shelf, propellants 12 and 11 may be used. However, as in all aerosol products containing alcohol and propellant 11, the moisture content should be kept to a minimum to insure greater stability of both the ingredients and the package.

Experimental Data

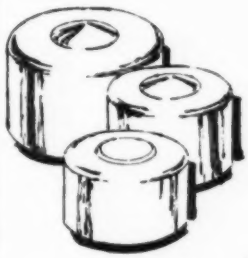
Materials—The test samples were prepared with potassium gibberellate, surfactant, alcohol, high boiling odorless base oil and Isotron 11, Isotron 12 and Isotron 114.

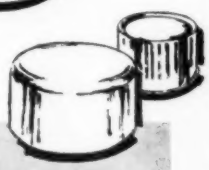
The containers for the oven test were six-ounce side-seam aerosol containers. The dimensions were 202x406 (2-2/16" by 4-6/16"). The tinplate on the bottom was 0.25 lb. and the sides were 0.50 lb. The lining on all oven test samples was a single epon coating throughout.

The all nylon valve had a double-plated tin cup with a stainles steel spring. The orifices were both 0.018 inches.

Procedures — Four shelf-test samples of each formula were set aside. These were to be weighed once a month until a year had expired at which time the cans were opened for examination.

metal aerosol caps





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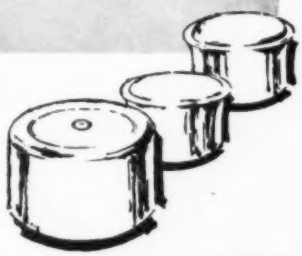

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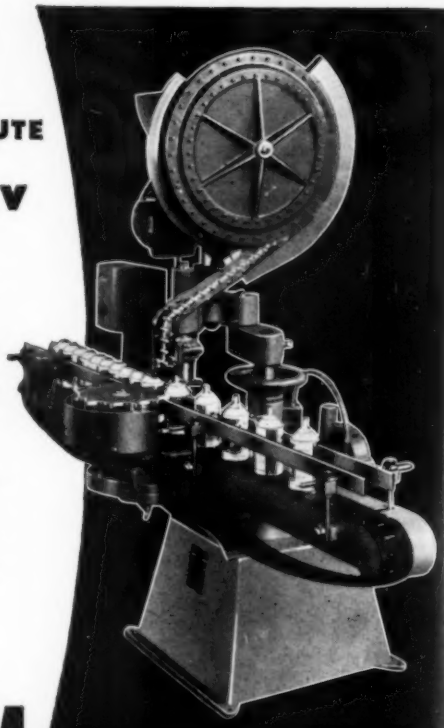

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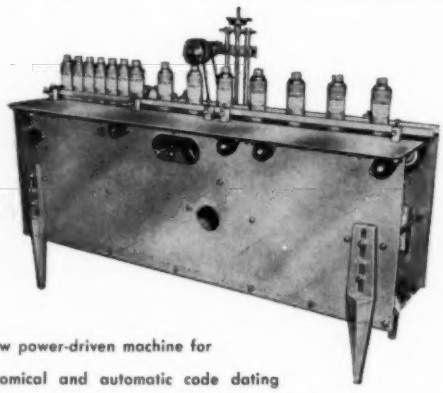

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All concentrates were tested for moisture content with Karl Fisher technique. Filled aerosols were later tested for moisture content to determine moisture pick-up which occurred in the laboratory while using the cold-fill technique on sample preparation.

Pressures were measured through the valve, using a gauge containing an aerosol activator fitting the particular valve. These were taken while the containers were in a water bath at the temperatures noted in the appendix.

A chloride test was performed on all concentrates at the end of the testing period after removal of the propellants. The test solution was saturated silver nitrate in methanol. Formation of a white precipitate indicated the presence of chlorides.

Test Results and Discussions (Detailed)

Oven Test — At the completion of 30 days at 130°F. all test cans were removed from the oven. One can from each series was analyzed for moisture content. Presure checks were made on the remaining containers, their contents removed and the containers cut open for examination. (Appendix B.)

Analysis of test results indicates that the propellant is the *most important factor* from the standpoint of corrosion resistance. No corrosion or evidences of epoxy lining failure occurred in any of the packages containing the Isotron 12 and 114 and the breakdown of Isotron 11 is probably the reason for the difference shown.

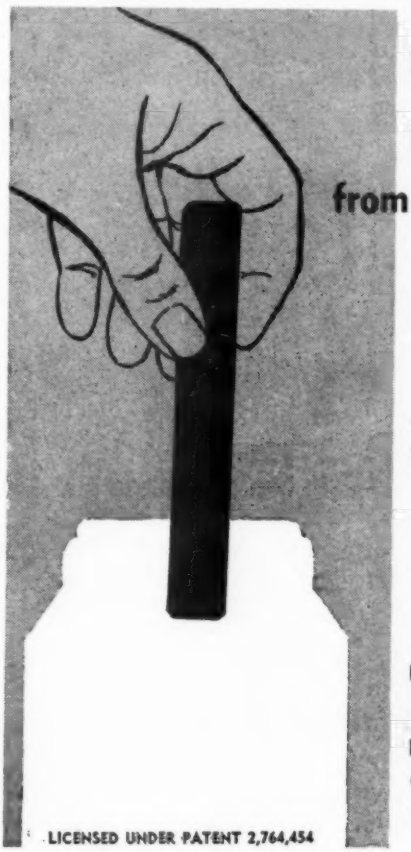
Several other factors seemed to exert some influence. The poorest resistance to corrosion was shown by test formula numbers 4, 11, 13 and 16. All of these formulations, with the exception of number 13, are characterized by the 2% Tween 20 concentration and all have relatively high water contents. The 2% Tween 20, in comparison with 0.2% Tween 20, probably exerted much more of a solubilizing and penetrating action on the epoxy lining of the container. The higher water content enabled the hydrolysis of Isotron 11 to proceed at a faster rate, which would in turn contribute to a higher rate of corrosion. There do not seem to be any clear cut differences in the test results which may be attributed to the presence of the odorless base oil or to the use of the different alcohols.

The results of the tests carried out on the package and contents at the end of the 30 day test period correlated quite well with the observed corrosion data. Cans that had the highest pressures had extensive corrosion as did those whose concentrates gave a strong positive chloride test. A strong yellow color in the concentrate was accompanied by general container failure. The light yellow color of the concentrate in most cases is

APPENDIX C
TABLE OF RESULTS OF SHELF STORAGE TESTS OF GIBBERELLIN AEROSOLS

Formula No.	*Net Wt. Change*	*Gauge Pressure 70°F*	*Chloride Test*	*Appearance of Conc.*	*Appearance of Can*
1	Neg. (1)	28	Negative	Clear-no precipitate	Tin only-light rust on bottom
2	Neg.	28	Positive	Clear-no precipitate	OK
3	Neg.	25	Negative	Clear-no precipitate	OK
4	Neg.	25	Negative	Clear-no precipitate	Tin only-light rust on bottom
5	Neg.	25	Negative	Clear-no precipitate	OK
6	Neg. (1)	26	Positive	Clear-no precipitate	OK
7	Neg.	26	Negative	Clear-no precipitate	OK
8	Neg.	26	Negative	Clear-no precipitate	OK
9	Neg.	26	Positive	Clear-no precipitate	OK
10	Neg.	35	Negative	Clear-no precipitate	OK
11	Neg.	36	Negative	Clear-no precipitate	OK
12	Neg.	26	Negative	Clear-no precipitate	OK
13	Neg.	25	Positive	Clear-no precipitate	OK
14	Neg.	26	Negative	Clear-no precipitate	OK
15	Neg.	26	Positive	Clear-no precipitate	OK
16	Neg.	28	Negative	Clear-no precipitate	OK

Note: (1)—One tinplated can of this series lost all its propellant. Failure apparently was not due to corrosion.



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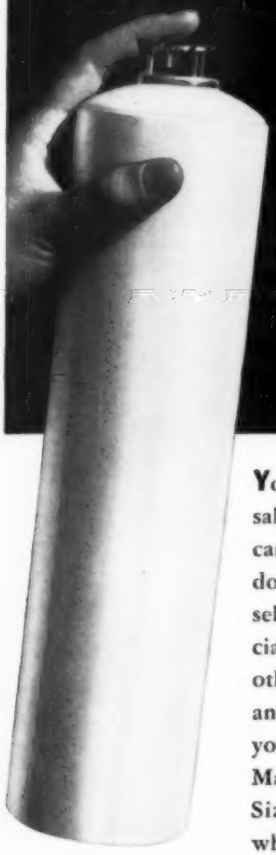

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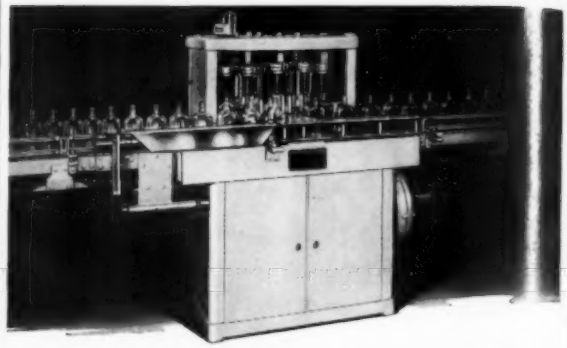

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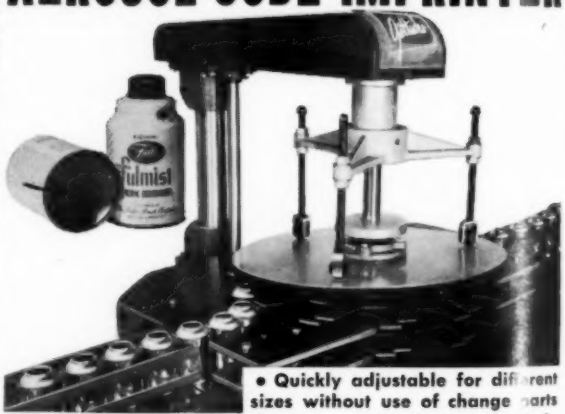

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due to the 2.0% Tween 20. It is important to note, however, that can failure did occur without any of the above indications.

An interesting effect was noted in the chloride test on some of the concentrates. The solution darkened apparently due to the reduction of the silver to the metallic state. In four out of five series where this occurred, 2% Tween 20 was present in the formula. Later testing in the laboratory showed that the Tween 20 alone was not responsible for the darkening. This effect was noted (series 2) in one instance where there was no corrosion in the containers. It would appear that the solvent action of the concentrate had extracted a substance from the package interior that functioned as a reducing agent toward the silver. This reaction did not occur in plain tin plate containers in shelf storage.

In no case was there any significant weight loss detected and all valves were observed to be operable at the completion of the test. The solutions apparently had no harmful effects on the gasket or valve components.

The appearance of the precipitate in all the solutions, although slight, would indicate that an insoluble material had been extracted from the can coating or that materials in the solution had been converted to an insoluble form. No attempt was made to identify the precipitate.

Growth studies conducted elsewhere indicate that a 2% Tween 20 concentration may cause phytotoxic response. It is also apparent that a 2% Tween 20 also seemed to contribute to can corrosion, as mentioned before.

Test Results and Discussion

Shelf Test — At the end of one year all samples were weighed, their pressures measured, and then opened for the chloride test and usual examination. Test results are appended in Appendix C.

The results of the test were uniformly good, with no can corrosion or can failure occurring in the lacquered cans. Evidence of corrosion was noticed in several of the plain tinplated containers; however, this could not be attributed to any one formulation variable.

The concentrate appeared to be unaffected by storage conditions. The positive chloride tests occurred without any discernible pattern.

All valves were operable. The weight loss in most instances was negligible. Two cans, however, showed a complete loss of propellant. Both cans were plain tinplate, but their failure did not seem to be due to corrosion.

It should be of interest that there seems to be little correlation between oven and shelf test results.

APPENDIX A (cont.)
MATERIALS LIST

Gibberellin: Potassium gibberellate, Merck & Co.
Tween 20: Atlas Powder Products Co.
Soltrol 170: Phillips 66 (high boiling paraffinic hydrocarbon initial b.p. c.420° F
Valves: Newman—Green #B14-50
Mounting Cup—Double tin-plated
Spray Head—B14
Actuating Spring—Stainless steel
Body—Nylon construction
Containers: Six-ounce American Can — Oven and Shelf
Dimensions — 202 x 402 (2-2/16" x 4-6/16")
Bottom, body—0.25 lb. tinplate
Top—0.50 lb. tinplate
Lining—Single epon coating throughout
Crown Can—Shelf only
Six-ounce extruded 0.5 lb. tinplate—no lining
Propellants: Isotron 11 (trichloromonofluoromethane)
Isotron 12 (dichlorodifluoromethane)
Isotron 114 (tetrafluorodichloroethane)
Pennsalt Chemicals Corp.

APPENDIX D
GIBBERELLIN AEROSOL
PENNSALT FORMULATION 45F

COMPOSITION

Concentrate		*Total Aerosol*
0.030%	Gibberellin (1)	0.006%
1.000%	Tween 20 (2)	0.2 %
98.970%	Anhydrous ethanol (SDA #40)	19.794%

Fill
20% Concentrate
80%
Isotron 12 *40* or Isotron 12 *50* *see note
Isotron 114 *60* or Isotron 11 *50*
All nylon valve, 0.018" internal, .018 external orifice

Package
Lacquered tinplated 6 oz. can

* Note: During mixing and filling operations it is very important to maintain as low a level of moisture as possible. This is particularly important if the Isotron 12-isotron 11 propellant combination is to be used.

Notice—
The information contained herein is to the best of our knowledge and belief, accurate, but is not warranted to be free from error. Since the conditions of handling and of use are beyond our control we make no

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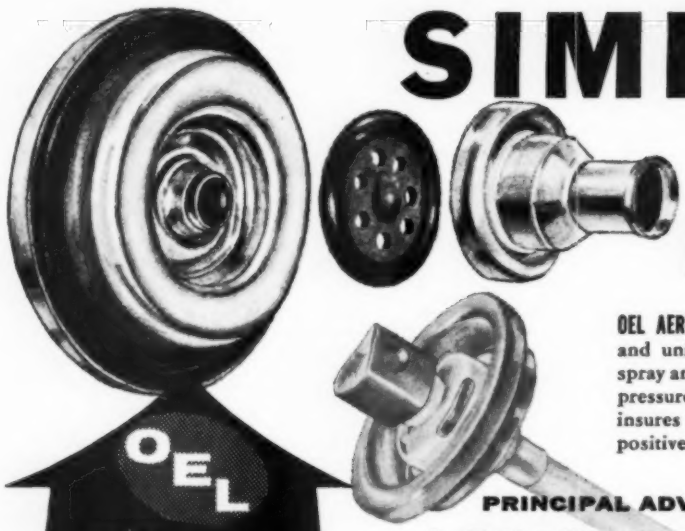

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Propellant Chilling

(*From Page* 40)

creased chilling effects. However, the wide dispersion of the spray produced causes less propellant to hit the target. This alone would cause a smaller drop to be recorded, while at the same time the chilling effect outside the target area would not be recorded. For this reason, it is doubtful that the methods used in this study provide a valid assessment of the chilling effects associated with the mechanical breakup type of actuator.

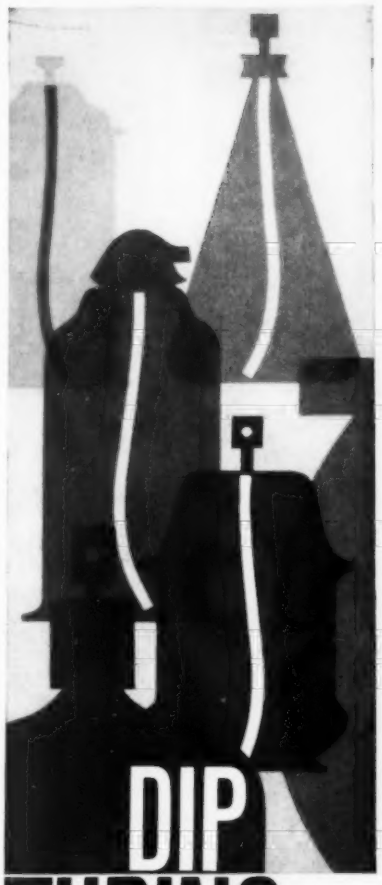
To gain an understanding of the behavior of the propellants and mixtures when emulsified or in solution, formulations of propellants with ethanol, isopropanol, mineral oil, and a water-in-oil emulsion base were prepared and tested. The results are presented in Table IV. Comparison of the data with those of Table I reveals that the relative chilling effects of the propellants are approximately the same when they are dissolved in solvents or emulsified. For example, Genetron 152a continues to be the most chilling while the other three propellants remained in the same close relationship to each other as did the pure propellants.

The chilling effects of alcoholic solutions containing 50 and 70% of Genetrons 12, 12/114a (70:30) and 12/11 (50:50), are very close in value to those of the pure propellants. However, solutions containing 30 propellants have approximately 15% less chilling effect than do the pure propellants. The 50 Genetron 152a-alcoholic solutions had chilling effects that were considerably less than those of the pure propellant. The reduction in chilling effect was 26 for the ethanol solution and 35 for the isopropanol solution. The mineral oil solutions and the emulsion systems containing Genetrons 12, 12/114a (70:30) and 12/11 (50:50) behaved similarly to their alcoholic counterparts, except that the chilling effects were less for those containing 30 and 50 propellant.

Despite the fact that the chilling effects of propellant solvent systems are generally the same or less than for the pure propellants, there is reason to conclude that the solvents contribute to the total chilling properties. This phenomenon has at least two aspects. As an illustration, let us consider a single solution, Genetron 12/ethanol (50:50). This solution has the same chilling effect as the pure propellant, although the concentration of Genetron is one half of what it is in the pure state. Normally, one would expect the temperature lowering to be half as much. The fact that it is not one half is probably due to the action of the solvent in reducing evaporation of the propellant enroute to the target. It is also to be expected that volatile solvents, such as alcohol contribute a chilling effect of their own as they evaporate from the target.

The following general conclusions can be drawn to summarize the influence on chilling effect of propellants resulting from their incorporation into the solutions and emulsion systems studied:

1. The chilling effect of a system is generally less than that of the pure propellant. However, at propellant concentrations of 70 per cent and above, the chilling effect may be greater than that of the pure propellant.
2. The chilling effect increases as propellant concentration increases.



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3. The chilling effects of propellant-solvent systems, for a given solvent, are in the same relative order as the pure propellants.

As mentioned previously, it was originally planned to conduct this study by spraying the propellants over a thermocouple attached to the skin of the forearm. This plan was abandoned because it was found that reproducible results could not be obtained. For instance, after spraying a skin area, the thermocouple was left in place so that the first temperature reading could be checked by a second. Before taking the second reading, the skin temperature was allowed to return to its normal level. However, the second reading was invariably different from the first, and the disagreement between readings was usually too great to allow acceptance of either one. Evidently, even though the skin temperature had returned to normal, the physiological changes that occurred in the skin upon the first spraying continued to exert an influence at the time of the second spraying.

As an alternative method of checking results, an attempt was made to take the second reading by moving the thermocouple to another area on the forearm. This procedure also failed to yield reproducible results. In addition to the experimental difficulties described, another reason for abandoning the test method using human subjects was that the more chilling propellants, when undiluted with solvents, caused frostbite.

This chilling-effect data obtained on the skin were compared to those obtained on the aluminum surface. It was found that, for any of the limited number of propellants tested, the temperature drop was some 10 to 15° more on the aluminum surface. However, the propellants tested exhibited the same relative order of chilling effects on both surfaces.

The experience gained by this study has suggested a number of ways in which the technique can be improved. The improvements that suggest themselves include:

1. Use of the same valve in all tests to eliminate errors arising from different delivery rates
2. An automatically controlled means of depressing the actuator button, to assure precise timing of spray
3. A thermostated and draft-proofed chamber to minimize errors caused by environmental variations

It is our hope that the data and technique described will be of assistance in formulating aerosols where skin chilling is an important factor.★

Report From Europe

(*From Page* 71)

The second point is that so far the industry has brooked no monopoly or countenanced any monopoly practices. We recall the time five years ago — and in some countries even later — when one could not buy a can without a valve, or a valve without a can. One European company even tried to tie its valve in with filling equipment. Fortunately, too many companies were interested in their own manufacture of equipment, valves and cans, so the practices soon disappeared. Now, all are gone. Particularly creditable have been the pricing and sales policies of the propellant manufacturers. Even ICI in England has recently put into effect some very substantial reductions for large quantities. If any segment of our industry had the opportunity of sitting on the lid and controlling development, it was the propellant suppliers. Five years ago there were only four such suppliers—one each in Germany, England, France and Italy. Now there are at least seven. At that time U. S. suppliers had the bulk of the market on imports, but the European companies have lowered their prices, given faster service, extended credits, established laboratory services, stepped up their production facilities and done yeoman's work in the industry's development. Due to this all-round healthy competitive condition, which

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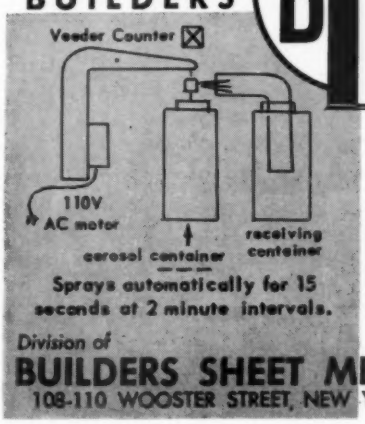

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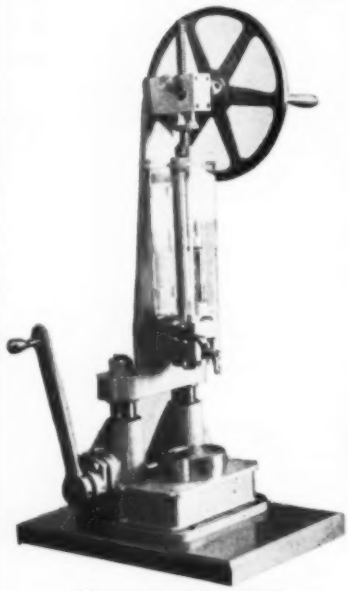

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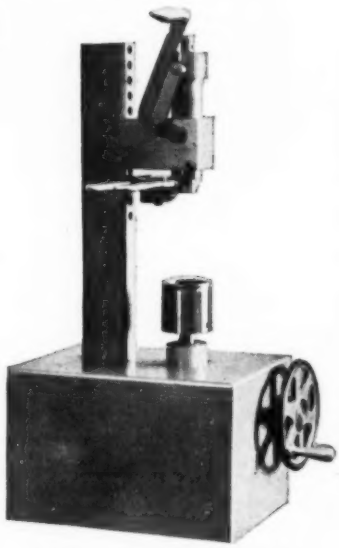

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For information about America's newest aerosol propellants, write: UCON Propellants, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 E. 42 St., N. Y. 17, N. Y.

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shows no signs of slackening, we believe the future holds still lower prices, not only for components, but also and (most important) for consumer end prices. We predict the growing number of large department and chain stores will start the move in this direction and that in the future there will be more and more specialty stores featuring aerosols exclusively in the various European cities.

Undoubtedly, the most important factor contributing to this steady growth has been the post-Marshall-Plan industrial and economic climate with which the industry started, and the impetus of which continues to give acceleration. Without this push the aerosol industry, along with many other new industries, might never have been born. Of course, it must be admitted that our opposites on the other side of the Iron Curtain also have their pressure packages, but they are all imitations and from what we have seen, poor ones at that. So far, they have not claimed to have invented them. That honor belongs to Europe and a Norwegian, beyond any doubt. And so, like many other ideas, products and developments the final item comes back home to thrive and flourish.★

•

P&T Appoints Hornstein

The Tintex and Toiletries Division of Park & Tilford, New York, has announced the promotion of Irving Hornstein from comptroller to executive assistant to the general manager.

Aerosols in Review

(*From Page* 80)

These acts impose two kinds of implied warranties: a warranty of fitness for a particular purpose and a warranty of merchantability. Where a product is manufactured and sold for human consumption, both these warranties are broken if the product is, in fact, unfit for human consumption. The result is that the sales acts themselves impose strict liability on manufacturers and distributors of food and drug products wherever injury is caused."

". . . One noticeable change in the law, a change which is taking place right now, is in the increasing disposition of the courts to impose *direct* liability on manufacturers whose products cause personal injuries. I refer, of course, to the marked decline in adherence to the rule of privity. Where the privity rule is still respected, for instance in New York, an action in warranty can be brought only against the plaintiff's immediate vendor. Where the action is based on an implied warranty, the defendant vendor, in most cases the retailer, can bring action against his vendor, the wholesaler, who can in turn recover from his vendor, the manufacturer. The point to notice is that in a case involving an injury resulting from consumption of a drug product, the manufacturer would always, in theory, be *strictly* liable in warranty, but only indirectly; that is, as the ultimate link in the privity chain.

"Although privity is still a requirement in some states in all warranty actions, it has not been required in several states for the past three decades, at least where food products are concerned. The requirement that there be contractual, or 'privity' relationship between the injured consumer and the defendant crumbled first in the food area. Once this was gone, the way was open for the injured consumer to sue the manufacturer of the product directly. That this concept extended from the food to the drug field, is not surprising, considering that both products affect the human body."

•

AN analysis of recent aerosol association developments in Europe is given in the March issue of *Soap, Perfumery & Cosmetics*, British trade magazine, by John Briston, well-known author on aerosol subjects and one of the observers at the recent formation of the European Federation of Aerosol Associations. His comments follow:

"I think perhaps my strongest impression was the desire for cooperation shown by all the delegates. I was

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also impressed by the willingness of the IAA delegation to relinquish their original goal of being the representative body for all Europe.

"I think that the plan put up by the Comité Francais des Aerosols and backed by the other delegates is a very promising one and is, in fact, the only one likely to be successful in view of the prior existence of other organizations, some of them with conflicting aims. There is also the point that it may stimulate the formation of a British Aerosol Association, since it would give direct representation in the Federation instead of indirectly, through the IAA. Messrs, Harlan and Franck are to be congratulated on their wisdom and foresight in convening the Paris meeting, and I, for one, hope it proves successful. Apart from the two gentlemen already mentioned, I think I was impressed most by Herr Staehle and Herr Jacobi of the German delegation. They seem to be particularly interested in establishing technical cooperation in the aerosol field and to have the initiative and drive necessary to the successful establishment of such an organization as the Federation."

•

A GIVEN quantity of insect toxicants is rather more effective in killing, or in knocking down insects, when it is disseminated from an efficient hand-operated sprayer than when an aerosol is used, writes Dr. William Mitchell, of Stafford Allen and Sons, Ltd., London in the March issue of *Manufacturing Chemist*, leading British trade publication. In an article titled "The Formulation of Aerosol Insecticides," Dr. Mitchell bases this argument on the following findings:

"Because of the relatively high cost of the propellant and of the package, it is only economical to market aerosols containing a much higher concentration of toxicants than that in the usual petroleum-based fly spray. Furthermore, the liquid that will constitute the actual aerosol mist amounts to no more than about one-fifth of the contents of the normal aerosol container, and is thus even more concentrated. It is quite usual for this liquid to have 60 times greater concentration of toxicants than has the liquid to be used in a hand-operated sprayer; and the total volume released each time the aerosol is operated is relatively small. A much larger volume of dilute fly spray has to be emitted from a hand sprayer in order to disseminate an equivalent quantity of toxicants. Thus, even though the droplets are larger and settle out faster than those from an aerosol, there are probably more of them. Hence the chance that an individual insect will be contacted by a toxic dose of insecticide is likely to be greater when a dilute fly spray is used to dispense the same amount of toxicant. The very fineness of the aerosol spray, the small total volume, reduce the chance that individual insects will pick up a toxic dose—even though the droplets themselves contain a relatively high concentration of toxicants."

Dr. Mitchell acknowledges that this somewhat reduced efficiency of aerosols is more than offset by their convenience of use and application. This shortcoming, he writes, can be "minimized by careful formulation, with an influence on the nature of the issuing droplets that is most important."

Dr. Mitchell's remarks about the pyrethrum in household aerosol sprays are also worth noting:

"The pyrethrum extract, which is usually sold with a content of 25% w/w of total pyrethrins, must answer the following requirements:

"(a) It must be freely soluble and, even after storage, must not deposit insoluble matter that will tend to clog the valve outlet.

"(b) It must not stain in use (or perhaps one should say in *misuse;* for in proper use a space spray type of aerosol should not be operated near enough to walls, furniture or fabrics to produce a visible deposit on them. Unfortunately, such misuse is all too frequent).

"Hence, a well prepared and purified extract, and one containing an effective anti-oxidant, must be used. Ordinary pyrethrum extract is rather highly colored, so that it can stain rather badly if an aerosol insecticide is used incorrectly as described above. Highly purified and decolorized extracts are now available in Great Britain which give practically colorless dilutions that do not stain. Such extracts dissolve completely in the solvents normally used to make aerosol insecticide concentrates, and are also completely soluble in propellant 11 or in mixtures of 12 and 11, but not always so in propellant 12.

"The more that pyrethrum extracts are purified and decolorized, the more they tend to become less soluble with age. This may be due to elimination of natural oxidants in processing. Hence, it is important that efficient anti-oxidants should be added to prevent such deterioration. Good quality extracts are always so treated by the manufacturers. In fact, trouble due to this cause is less likely to be encountered in aerosol insecticides than in ordinary fly sprays. One reason is that atmospheric oxidation almost certainly plays a part in the changes resulting in decreased solubility, and aerosols, expecially those that are cold filled (as is usual with insecticide aerosols), contain little or no residual air. Another reason is that the propellants and the auxiliary solvents in an aerosol insecticide are much better solvents for any material of reduced solubility than are the hydrocarbon solvents, such as deodorized kerosene, used in ordinary fly sprays."

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Eastman to AHP Post

William K. Eastham has been named assistant to the president of American Home Products Corp., New York, parent firm of Boyle-Midway, a major aerosol marketer.

Two Battelle Studies

(*From Page* 58)

strength and pleasantness of its odor about half the time."

The Battelle study is based on 30 odorous substances, all from among odorants selected to represent a wide range of typical scents by Quartermaster Corps scientists in previous research. Battelle research assistants sit in a closed "smelling booth," sniff odorants at 30-second intervals, and report a description of each odor. The reported characteristics of the odors are then studied in relation to six physical properties of the odorant.

"Our research shows that these six properties are useful in predicting the characteristics of an odor, but more research will be needed to explain just why and how some properties affect smell," says Dr. Schutz. "In order to be smelled, a substance must come in contact with small areas of sensitive cells, far up in the nose. We have learned that a substance that evaporates readily usually has a stronger smell. It seems reasonable to think that such a substance reaches the sensitive cells more readily and in greater amounts. This may be why vapor pressure and surface tension have significance in odor. On the other hand, substances with a high ability to penetrate cell tissue usually have a weaker odor. Substances with strong properties of adhering to surfaces usually have a weaker odor. The abilities of substances to absorb heat and ultraviolet radiation are also linked to strength and pleasantness of smell. We are not sure what the nature of these relationships is, but our research shows that the relationships exist."

An interesting sidelight of the Battelle research: in working with the smelling booth, it was learned that a person's awareness of an odor decreases with the length of time he is exposed to it, but the introduction of a new odor finds the nose as sensitive as before.★

Delrin Acetal Resin

(*From Page* 56)

volume of plastic needed to form the bottom; the total volume of the bottom, top, and neck being approximately twice that required for the bottom alone.

$$V_p = \pi \, d \, H_w \, t_w + 4 \pi R \, H_b \, t_b \qquad (1)$$

In order to obtain t_b, several equations are needed from reference 8 (p. 535)

$$p = 2Ek^{1/2} \left(\frac{h}{R}\right)^2 P$$

$k = 2/3\,(1 - \nu^2)$; $k^{1/2} = 0.765$ for $\nu = 0.35$

$$h = \frac{t_b}{2}$$

From Figure 4 of reference 8, we see that collapse may be avoided safely by letting $P < 1$, from which we obtain the equation, with a safety factor taken on pressure as the uncertainty.

$$t_b = \left(\frac{pF}{0.382}\right)^{1/2} \left(\frac{1}{E}\right)^{1/2} R \qquad (2)$$

$$\left(\frac{pF}{0.382}\right)^{1/2} = 20.7 \text{ and } \left(\frac{1}{E}\right)^{1/2} = 0.00316$$

To establish the geometry of the most efficient dome, minimize $4 \pi R H_b t_b$ by substitution of $R - \sqrt{R^2 - \left(\frac{d}{2}\right)^2}$ for H_b and the right side of equation (2) for t_b to obtain

$$R = \frac{d}{2} \text{ and } H_b = R \qquad (3)$$

From Barlow's equation, with a safety factor taken on pressure as the uncertainty, thickness needed for the cylinder wall is

$$t_w = \frac{pdF}{2s} \qquad (4)$$

Assuming the volume loss due to the inverted dish is exactly compensated for by the top and neck volume above the side wall, the volume of the ideal cylinder becomes

$$V_c = \frac{\pi d^2}{4} H_w \qquad (5)$$

Combining equations (1) - (5) we get equation (6):

$$V_p = \left(\frac{2pF}{s}\right) V_c + \left(\frac{\pi}{2}\right)\left(\frac{1}{E}\right)^{1/2}\left(\frac{pF}{0.382}\right)^{1/2}\left(d^3\right) \qquad (6)$$

or, $V_p = 0.0820\, V_c + 0.1026\, d^3$ (for "Delrin") or, Grams "Delrin" = 3.45 (ounces total volume) + 2.39 d^3 (7)

Equation (7) is the basis for Figure 3a and was obtained by substituting values as given in the assumptions and by making convenient substitutions of units. The density of "Delrin" is 1.425. The derivation is useful in its various parts to appreciate the importance of design geometry on plastic requirements.

Equation (5) is the basis for Figure 3b, illustrating the practical limitations of changing geometry of the ideal cylinder to maximize economy.

Calculation for ideal sphere: A similar approach was used except that no modifications of the sphere for top or bottom were considered.

$$t_w = \left(\frac{pF}{4s}\right) d, \; V_c = \frac{\pi}{9} d^3, \; V_p = \pi d^2 t_w$$

$$V_p = 0.0322 \; d^3 \text{ and}$$

$$d = .51 \sqrt[3]{\text{total volume, ounces.}}$$

Meaning of Symbols, in Order of Use

V_p—volume of plastic used, cubic inches.

d—diameter of ideal cylinder or sphere, inches.

H_w—height of side wall, inches.

t_w—thickness of side wall, inches.

R—radius of curvature of bottom dome, inches.

H_b—height of bottom dome, inches.

t_b—thickness of bottom dome, inches.

p—internal pressure, psi.

E—modulus, psi., an "apparent modulus" being used here.

k—dimensionless number, $k = 2/3 \; (1 - \nu^2)$.

h—one-half the thickness of the bottom dome, inches.

P—dimensionless loading parameter used in reference 8.

ν—Poisson's ratio, 0.35 for "Delrin", dimensionless.

F—safety factor.

s—hoop stress, psi.

V_c—total volume of container, cubic inches.

6. Wechsler, R. L., and Baylis, T. H., "Blow Molding Polyethylene," SPE Technical Papers, Volume V, January 1959, p. 44-4.
7. Brown, G. S., "Blow Molding," SPE Technical Papers, Volume V, January, 1959, p. 41-1.
8. Reiss, E. L.; Greenberg, H. J.; and Keller, H. B., "Nonlinear Deflections of Shallow Spherical Shells," JOURNAL OF THE AERONAUTICAL SCIENCES, July, 1957, p. 535.

•

Aerosol Colognes on Rise

Aerosol cologne sales for 1958 will exceed 16 million units, U. S. Industrial Chemicals Co., New York, estimated recently. The figure would be an increase of 50% over the sales figure of 18 million units reported for 195

U. S. I. based its estimate on its sales of anhydrous alcohol for aerosol cologne applications. The company estimates that colognes will probably rank sixth in unit sales among aerosol products sold in 1958, with hair sprays, shaving lathers, room deodorants, insect sprays, and spray coatings ahead.

Perfumers' Meeting

(From Page 64)

This, he suggested, might be necessary because of the ever-increasing tendency toward use of synthetics in perfume formulation.

2. The marketers of fine perfumes and luxury cosmetics, for which the perfumer would maintain his previous role of an artisan and craftsman who would use instruments only as an adjunct to his own efforts.

"The real danger is that these two schools of thought might drift further and further apart. The Society of Perfumers should work toward preventing this drift."

DR. LOHMAN pointed out that the use of analytical instruments (such as the spectrophotometer and the gas chromatograph) will have the role of elucidation of the perfumer's sense of smell, and will aid in the realization of uniform, high quality perfume materials. Further, he suggested, they will serve to preserve perfume consistency for a long period of time, implying that the changing tastes of the perfumer will no longer be a factor.

Dr. Lohman suggested that an objective method of perfume evaluation has always been desirable because of the subjective preferences of the perfumer, fatigue, and other special circumstances that might alter his evaluation of a perfume. The gas chromatograph, he declared, is an approach to this ideal of objectivity, and is simple, fast, and very efficient for routine analysis. He suggested that the gas chromatograph might much more easily pave the way to further use of synthetics for basic perfume materials.

Further opinion on the true value of the gas chromatograph was ex-

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pressed in the paper of Mr. Johnst n, who declared that these instrume ts can be highly valuable for "shedd ig light on previous dark areas of r- fume knowledge." He pointed at that the instruments readily pay or themselves in results, and that he infra red spectrophotometer is ne of the most valuable devices av il- able to the perfumer.

These instruments, he fur er pointed out, have opened a w ole new area of research to the perfu er, for in time they will enable hin to determine the exact combinatio of essential oils that go to make up ny given perfume mixture. It will lso permit the formulation of m ore stable perfume constitutents i a variety of products.

Mr. Fearns, the first speaker, out- lined briefly the way in which the perfumer and the analytical chemist can make use of these instruments. He reviewed briefly the principles and exact applications of visual, ul- traviolet, infrared spectrophotometry and gas chromatography.

In his conclusion after the formal talks, Mr. van Ameringen declared that analytical measurement will really make it possible for the per- fume purchaser to get a product more pure and more consistent than he ever did before. He suggested that one great service of analytical chemistry for the perfumer will be to permit him to determine the exact amount of the impurity (in a per- fume that has been formulated to take advantage of the impurity) to enable him to repeat the basic scent when the perfume is next created. Further, it will give him a valuable tool in analyzing all types of perfume materials for purity and quality con- trol standards.★

Packaging Confere ce

(*From Page* 35)

in tinplate cans with conve ional nitrogen valves. However, at t e last minute, it was discovered that ated glass was a definite and practic l pos- sibility for this type of produ and

the plans were drastically altered to allow introduction of the product in glass. This necessitated a complete discarding of all technical and market study work on the metal container.

Mr. Dubin explained that original plans called for marketing of the product in August of last year, but that the shift back to glass containers forced a postponement of the marketing date to February. He implied that the Pond's management felt the change to the glass bottle justified the delay. A glass container, he said, is closer to what the American woman has come to expect as a package for hand lotions and creams.

AEROSOLS also came in for discussion in a paper delivered by John Deal, advertising manager of The Upjohn Co., Kalamazoo, Mich. Citing Upjohn's "Zumasyrup", a nitrogen-powered aerosol vitamin preparation, Mr. Deal demonstrated why this particular product constituted a basic change from appearance of the company's other products, which are designed mainly to attract the professional eye of the doctor and pharmacist.

Mr. Deal also made reference to the switch to self-service selling, and pointed out that this trend has put a more definite burden on the drug marketer to build into packaging the flair that will better sell the product. He explained how Upjohn has been trying to do this and at the same time maintain the "scientific look" of pharmaceutical packaging.

"The package itself and the related package display case or card are becoming the only real sales media, "he declared, demonstrating this with Upjohn's solution in color and general package design.★

•

Kay Reed Joins Ciro

Parfums Ciro, New York, last month appointed Mrs. Kay Reed to the post of merchandise manager. She had been director of advertising and public relations for the Lady Esther Division of Chemway Corp., Mountain View, N. J. In her new post she will supervise packaging, advertising, and publicity.

Gilbert Plastics

(*From Page* 72)

colors, the feeding of the hoppers, and the "take out" of the finished caps from the fast-working machines. Since Gilbert has a long established policy of using only virgin plastic materials as opposed to "off" grades or reclaimed materials, the question of raw materials handling is a simple one.

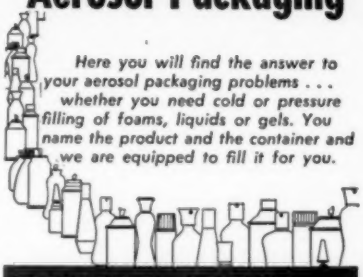
The bagged plastic simply comes in off trucks on pallets and is moved by fork-lift trucks directly to the fabrication units. Where colors are needed the plastic is directed to a separate color section, where the color pigments are added by vibration in the proper proportions. Gilbert stocks aerosol caps in forest green, red, white, blue, and black, but claims to be able to match nearly any color the customer wants, providing, of course, the number ordered is enough to warrant the color matching and experimental work necessary to produce the color desired.

An aerosol specialty of Gilbert Plastics is the plastic stacking cap, which is currently being fabricated in both conventional polyethylene and polyethylene mixtures with other plastics. Just recently the Gilbert's research department developed a "Dura" stack cap actually one of the low pressure polyethylene family. The new cap is resistant to most acids, perfumes, and solvents; won't chip; and will crack only under pressures far exceeding any encountered in normal aerosol product use.

Gilbert Plastics' research department is also actively working on development of a non-expensive overprinting method which because of the heat employed in injection molding, will have to be done after the cap is fabricated.

This new plant, these cap improvements and other developments still to be announced are expected to keep Gilbert Plastics prominent in the aerosol field.★

Aerosol Packaging



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WHO'S WHO IN THE AEROSOL INDUSTRY

Larry M. Garton's job is to fit the container to the product. And in the lusty aerosol industry, that's a big one. His official title is supervisor of the non-foods group at American Can Company's Eastern Area laboratory in Newark, N. J. The group determines the container characteristics required by products being considered for pressure packing.

There are four variables in a pressure can, and they may be changed thousands of different ways to make a container that is ideal for the product, whatever it may be. Those variables are: the chemical composition of the tinplate, its temper, its gauge, and the coatings.

As the pressure-packing industry has grown phenomenally since 1951, so has Mr. Garton's work, both in quantity and complexity. He believes the pressure can is the package of the future for many, many more products than are now being packed in it. He foresees, specifically, major expansion in th food, drug and pharmaceutical fields.

His career in the canning industry began in 194 just after he was graduated by the University Colorado with a B.S. degree in chemistry. He fir worked as a chemist in the company's research an technical department at Maywood, Ill. Assignment in Canco's food analysis, fibre container and non-foo packaging laboratories provided him with the broa background demanded by his responsibilities in th pressure-can field. He was transferred to the Easter Area in 1940.

When Canco intensified its work on this type container in 1951, Larry Garton became the company' first technical expert on pressure cans on the Atlanti seaboard.

He has done graduate work at both the Universit of Chicago and the Illinois Institute of Technology He is a member of the American Chemical Society and is on three technical subcommittees of the Chemical Specialties Manufacturers Association. He has lectured on packaging problems at Rutgers University.

He is married, has two children, and lives in Madison, N. J. His hobbies are singing, fishing and hunting. He has sung with the Mountain Lakes Glee Club and also is an enthusiastic member of the SPEBSQSA — the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America.

Whether you agree

with what has been written in the articles in each month's AEROSOL AGE, or

Whether you don't —

we welcome letters expressing your views. You may well have a thought or an angle which was overlooked by the author of the article. By publishing your letters in AEROSOL AGE others of our readers will have the opportunity to hear your side. Suitable letters and opinions will be published in the regular "From the Editor's Mailbag" column. Address your letters to:

The Editor
P.O. Box 31
Caldwell, N. J.

Gillette Co. Names Two

Two executive appointments in Gillette Laboratories were announced last month by The Gillette Co., Chicago. J. W. Dickinson, Jr., has been named general manager and Dr. Daniel J. Johnstone has been appointed medical director.

Mr. Dickinson has been with Gillette Laboratories for the past two years, serving as marketing director. Prior to that he was a supervisor in the brand department of The Toni Co. Dr. Johnstone, newly appointed medical director, previously was associated with the Warner-Lambert Research Institute and the Eli Lilly Co.

Gillette Laboratories, the proprietary drug division formed by The Gillette Company two years ago, is transferring its operations from Boston to Chicago, it was announced. J. W. Copher, general sales manager, will headquarter in the new general offices in the Merchandise Mart.

Yardley Appoints Four

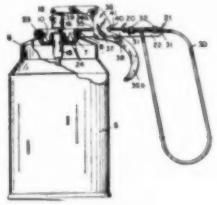
Yardley of London, Inc., New York, toilet goods marketer, recently announced four new appointments in its sales department. Fred J. Fitzgerald, former assistant sales manager became field sales manager. Eric William was appointed southwest regional manager and George Greaves north central regional manager. John W. McKenzie, Jr., will be assistant marketing director.

New Aerosol Patents

Listed below is a brief review of recent patents pertinent to the aerosol and related industries.

Complete copies of these patents may be obtained by writing to the Commissioner of Patents, U. S. Patent Office, Washington 25, D. C., and remitting 50c for each copy desired. For orders received outside of the United States the cost will be $1.00 per copy.

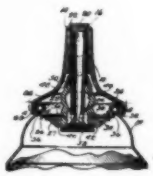
2,877,934. DETACHABLE HANDLE FOR GAS LOADED DISPENSING CONTAINERS. Issued March 17 to Frank Charles Wallace, North Hollywood, Calif., assignor of one-third to H. H. Helbush, and one-third to F. R. Livingston, both of Los Angeles.



A handle device for releasable attachment to the cover bead of a spray can having a spray valve button surrounded by said cover bead, comprising an elongated body having an opening through its outer end portion for passing said button and having a handle portion depending from its inner end; said outer end portion having a depending flange disposed to embrace the outer surface of said bead and having resilient fingers of outwardly bowed cross section depending therefrom around said opening in laterally spaced relation to said flange whereby to resiliently engage the inner surface of said bead, and a valve button actuating lever pivoted between its ends to said body, said lever having an inner end portion disposed adjacent said handle and having an outer end portion overlying said opening.

•

2,877,936. VALVE AND DISPENSING APPARATUS FOR PRESSURE CONTAINERS AND THE LIKE. Issued March 17 to David Daniel Michel, Chicago, Ill.



A dispensing device for an apertured pressurized container comprising a container cap having an apertured web portion for closing said pressurized container, elongated stem means having a central aperture extending longitudinally therethrough, a plug integrally formed with said stem means to close one end of said aperture, said stem means having an annular shoulder in spaced relationship to said plug and being transversely apertured adjacent to said plug, and annular valve seat means of a yieldable material in sealing engagement with the apertured portion of said container cap and extending through the aperture therein, a central portion of said annular valve seat means having an enlarged annular cavity formed therein, said central portion of said annular valve seat means portion defining said cavity having restricted annular portions defining opposed end limits of said cavity, said restricted annular portions having a diameter sufficiently small to form a seal with said stem means for all positions and degrees of operation of said stem means, one of said restricted portions adjacent said stem means' annular shoulder, the other engaging a stem means portion disposed between the annular shoulder thereof and said stem means' transverse aperture whereby said annular cavity is sealed from the exterior thereof, said stem means extending through said seat means, said seat means being compressed between said shoulder and said plug and yieldably urging said plug into sealing engagement with said seat means whereby the portion of said seat means defining said cavity is urged outwardly.

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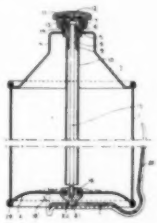
2,879,925. ATOMIZING APPARATUS. Issued March 31 to Roger Remane, Courtonle-Bas, France, assignor to Rene Maurice Achille Joseph Pollet.



An atomizing apparatus for storing and dispensing products dissolved in or mixed with a liquefied gas retained under pressure, comprising a container having a peripheral wall and top and bottom end walls, said top wall having an aperture therein, a valve body fitting in said opening with a gas-tight connection and comprising a valve chamber provided with a restricted discharge outlet opening outside the containers and a bore extending from said chamber to the inside of the container, a valve seat in said chamber around said bore, a tubular valve stem having its lower end fixed to the bottom end wall of the container and extending up through said bore, a valve on the upper end of said stem inside said chamber and engageable with said seat, means providing a fluid tight seal between said stem and said bore of the valve body, said tubular stem being longitudinally slidable through said fluid tight seal and having an aperture in its lower portion opening into the interior of said container and a second aperture in its upper portion opening into said bore of the valve body above said fluid tight seal but below the valve seat to connect the lower portion of the interior of the container with said bore, at least one of said end walls of

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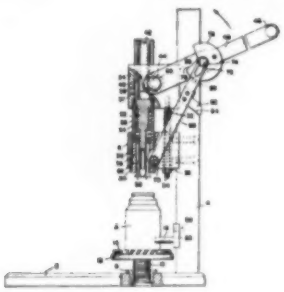
the container being flexible and resilient, and actuating means associated with said flexible and resilient end wall for deflecting said wall inwardly to move said end walls toward one another and therby unseat said valve from its seat to permit discharge of material from said container.

•

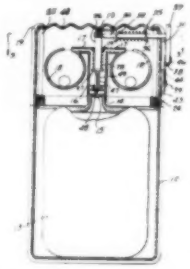
2,878,632. MACHINE FOR CAPPING CONTAINERS. Issued March 24 to Robert A. Foresman, Jr., Philadelphia, Pa.



In apparatus for applying a cup-like cap to the open top of a container having a neck converging toward the opening, the combination comprising an assembly including a plurality of fingers, and means for camming said fingers outwardly, and articulated means including a first link pivotally mounted upon said assembly and operatively connected to said cam means for actuating the latter when turned about its pivotal axis, and a second link mounted for pivotal movement about a fixed axis, said pivotal axes being disposed in parallel horizontally extending vertically spaced relation, said articulated link means being movable to an intermediate dead center position wherein each link extends upright from the pivotal axis thereof, said links being pivotally connected together at a point above the pivotal axis thereof, said links being pivotally connected together at a point above the pivotal axis of said first link, said articulated link means being manually operable for lowering said assembly for projecting said fingers into a cap occupying the container opening, and for actuating said cam means for expanding said fingers thereby to force the cap material into sealing engagement internally with the neck of said container.

•

2,878,774. GAS OPERATED SAFETY WARNING DEVICE. Issued March 24 to Joseph D. Carroll, McKeesport, Pa.



In an alarm and warning device, a rigid casing, a container of gas under pressure mounted in said casing, said container being provided with a neck, a frangible closure element closing said neck, a vertical conduit member surrounding said neck and having the lower end secured to said neck and having the upper end spaced above said neck, a vertically disposed plunger having a prong projecting from the lower end positioned within said conduit member so that the prong is exteriorly of and above said frangible closure element with the portion adjacent the upper end projecting freely out of the upper end of said conduit member, propelling means operatively connected to said plunger for moving the plunger downwardly and projecting the prong through said frangible closure element with sufficient force to fracture same and release the gas in said container, means carried by said casing and operatively connected to the projecting upper end portion of said plunger for holding the plunger in the position in which said prong is exteriorly of and above said closure element, and a releasable catch member normally engaging said means and operable upon release to permit actuation of said propelling means to project the prong of said plunger into said frangible closure element to fracture same.

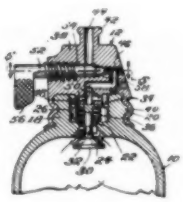
•

2,876,601. COATING REMOVING METHOD. Issued March 10 to Norman F. McFaddan, Los Angeles, assignor to Hughes Aircraft Co., Culver City, Calif., a corporation of Delaware.

In a method of removing a surface coating from wire material, the steps of: supporting said wire material; directing a stream of an abrasive carrying emulsion against said wire material, said emulsion including water, a wetting agent and said abrasive; and pressurizing said emulsion with gaseous nitrogen to produce said stream.

•

2,877,766. PORTABLE OXYGEN SUPPLY. Issued March 17 to William F. Moore, Coshocton, Ohio; Sylvia Myrtle Moore, administratrix of said William F. Moore, deceased.



A portable oxygen supply comprising a comparatively small, sealed container adapted to hold a supply of oxygen under pressure; cap means for said container having an end to end bore communicating at one end with the oxygen confining space of the container, the other end of the bore opening upon the outer end of the cap; a tube connectable to said cap at the outer end thereof in communication with the bore; said container including valve means spring biased to a closed position for controlling the flow of oxygen through the bore of the cap; said cap means being movably mounted on said container and having a portion engaging the valve means to shift the same to open position against the restraint of the spring bias thereof upon movement of said cap means to its position of tight closing engagement with the container; and a mask carried by the tube at the outlet end thereof applicable to the nose of a wearer.

•

2,879,966. CAN HANGER. Issued March 31 to Earl J. Carroll, Tarrytown, N. Y.

A metal bracket for attachment to an upright surface for removably supporting, in a position substantially parallel to such surface, a can of the type having an outwardly protruding chime extending along one end of a side wall; said bracket including an upwardly extending substantially flat base constructed for securement to the upright flanges projecting forwardly from its said edges, and substantially coextensive with the side edges and substantially normal to the base; the outer edges of said flanges being substantially parallel to said base; said flanges having forwardly and upwardly opening notches at the upper ends of their outer edges, the depth of said notches laterally of the flanges being substantially less than the width of said flanges; and a retaining lip of substantial lateral extent extending forwardly from the upper edge of said base a distance of the order of the width of said flanges and then downwardly toward

(*Continued on Page* 126)

bio-assay
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PARTNER WANTED with volume accounts in auto trade for new reusable "automatic" fire extinguishers. No money—just outlets. Joseph Hayden, P. O. Box 964, Newark, New Jersey.

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YOUNG MAN with many years of experience in aerosol formulations for cosmetic and pharmaceutical products, seeks a challenging position, preferably in Northern New Jersey. Can be in charge of a project and assume full responsibility. Address Box 179, c/o Aerosol Age.

Meshberg to Europe

Philip Meshberg, president of Emson Research Laboratories, Inc., Bridgeport, will leave on a European trip May 23rd. Mr. Meshberg plans to visit Italy, Germany, Switzerland, Holland, France and England to survey markets for his firm's line of aerosol valves and container components. While in Germany, he will spend considerable time with his affiliate and partner, Karl Huber of Emson Aerosols GMBH, Karlsruhe, Germany.

Mr. Meshberg is the owner of several international patents for metered valves and containers. At present they are being introduced in United States by both Emson and Valve Corp. of America. On his four-week trip to Europe, he plans to demonstrate the latest products of his firm to aerosol fillers and marketers.

Sig Was, sales manager of Emson Research, will be in charge of the company's operation while Mr. Meshberg is in Europe.

Custom Food Filling

(*From Page* 61)

swered by marketing test areas with controlled advertising through various media, to determine the most effective merchandising methods.

The food aerosol custom filler operated as the hub, or co-ordinator, of the various facets of the product development and production of this item. Why? That is his basic function.

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Armstrong arms its filling lines with new UCON Brand Propellants. UCON Propellants 12-11 now pressurize products filled at Armstrong Laboratories, in Boston. Armstrong does cold and pressure filling, specializes in pharmaceuticals. Recent expansion includes a new laboratory to support a thriving traffic in custom formulations. In foreground above, E. E. ("Rusty") Husted, of Union Carbide Chemicals Company, shakes hands with John C. Armstrong. His partner, Robert W. Armstrong, Jr., is at the right. Behind them: Edward C. Burgard, Armstrong Production Manager (left), and Arthur B. Chivvis, CARBIDE Technical Representative.

For information about America's newest aerosol propellants, write: UCON Propellants, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 E. 42 St., N. Y. 17, N. Y.

UCON and UNION CARBIDE are registered trade marks of Union Carbide Corporation.

Aerosol Patents

(*From Page* 124)

the plane of the bottom edges of said notches and terminating short of such plane; said lip being adapted to extend over the chime of a can when supported in said notches and to engage substantially widely circumferentially spaced portions of the inner surface of the chime of a can so supported to restrict movement thereof out of said notches; the side wall of a can, when a can is supported in said notches, engaging the entire length of the outer edges of said flanges, to inhibit oscillation of the can so supported, and the bracket being adapted to support a can entirely outwardly of the outer surface of said base; the lower edge of said lip, due to its substantial length, limiting the oscillation of a can supported in said notches, by engagement with a closed end wall of such can.

•

2,880,140. SUN SCREENING COMPOSITIONS. Issued March 31 to Maison G. de Navarre, Detroit, assignor to Beauty Counsellors, Inc., Grosse Pointe, Mich., a corporation of Michigan.

A sun screening composition adapted for topical administration comprising a substance selected from the group consisting of beta-resorcylic acid, salts of beta-resorcylic acid, esters of beta-resorcylic acid, and amides of beta-resorcylic acid in quantity sufficient to screen out at least 90% of the sun rays within the range from about 2970 A. to 3150 A. when applied in a thin film to the human skin, in a cosmetic vehicle having incorporated therein at least 5% of a bland nonvolatile high-boiling, organic excipient which is liquid at body temperature with a boiling point of at least about 180° C. and serves to distribute the substance over the body surface and to maintain it in solution, wherein the sum of the concentrations of water and alcohol in said vehicle is not greater than 90%.

Trade Mark Applications

Applications for registration of the following trademarks were published in recent issues of the *Official Gazette* of the U. S. Patent Office. In not all cases are there strictly aerosol trademarks, however many of the products listed below come within the category of those for which a possible future use in aerosols is foreseen.

BAC-ATAC, for room deodorant and santizer in the form of a spray. Filed May 16, 1958 by Park & Tilford, New York, with first use claimed for April 22, 1958.

MALINGO, for parasiticide for veterinary use. Filed Aug. 28, 1957 by Fort Dodge Laboratories, Inc., Fort Dodge, Iowa, with first use claimed for March 29, 1957.

AQUA-SOLV, for anti-fogging solution used on glass surfaces. Filed April 22, 1958 by Opotow Dental Manufacturing Corp., Brooklyn, with first use reported as March 26 of previous year.

SPRAY-A-SQUEAK, for silicone lubricants. Filed May 5, 1958 by General Motors Corp., Detroit, reporting first use April 1, 1958.

WATER-CHEK, for paint. Filed Jan. 13, 1958 by Nu*Enamel Co., Chicago, claiming first used in Aug. 1957.

FILICONE and COTOSIL, both for protective creams providing protection of the skin against industrial polar solvents, pollen irritants, and common household irritants. Filed June 10, 1958 by SchenLabs Pharmaceuticals, Inc., New York, with first use given as May 13 of same year.

MINIT SPRAY, for aerosol spray enamel. Filed Oct. 29 by M. A. Bruder & Sons, Inc., Philadelphia, with first use June 3 of same year.

TOUCH 'N BRUSH, for dentifrice. Filed Feb. 21, 1958 by Bristol-Myers Co., New York, claiming first use Jan. 20 of same year.

VIGORTONE, for chocolate flavored syrup. Filed April 23, 1958 by Berko Malted Milk Co., Brooklyn, reporting first use in 1934.

TRAPEZE, for perfume, eau de parfum, and eau de cologne. Filed June 19, 1956 by Parfums Corday, Inc., New York, with first use reported as May 28 of same year.

QUELQUES FLEURS REFRESHENCE, for cologne. Filed June 25 by Houbigant, Inc., New York, claiming first use Oct. 21, 1955.

COMMAND, for man's hair conditioning and dressing spray. Filed Nov. 14, 1957 by Lobco, Inc., d.b.a. Alberto Culver Co., Chicago, with first use given as Sept. 16, 1957.

TOUCH 'N BRUSH, for dentifrice. Filed Feb. 21, 1958 by Bristol-Myers Co., New York, claiming first use Jan. 20 of same year.

VIBRO, for room deodorants. Filed Aug. 11, 1958 by Soap Specialties, Inc., Philadelphia, claiming first use March 1, 1956.

TRYZOL, for fly spray. Filed May 1, 1958 by Tryzol Products Co., Chicago, reporting first use as June 18 of previous year.

LITTLE GIANT, for insecticides. Filed June 23, 1958 by Cenol Co., Chicago, with first use reported as on or prior to Feb. 3 of same year.

FIFTEEN, for spray cologne and deodorant. Filed Nov. 1, 1957 by Helene Prevel, Inc., New Rochelle, N. Y., claiming first use Oct. 21 of same year.

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OVER THE TRANSOM

CONCRETE evidence of the new surge in food packaging is the recent booming market activity of five chocolate syrup products in nitrogen-powered packages. Products under the label of Nestle, Sunny Boy, Party-Pak, Maison-Julien, and Aeroset have been moving off the market shelves at a particularly fast pace; and we have heard that one of these marketers has predicted sales of 15 to 20 million this year for his product alone! Three of these are being packaged by custom fillers—Nestle by Fluid, Maison-Julien by Tasti Cup Coffee Co., and Party-Pak by United Gas.

Further evidence of a bright future for aerosol foods is the word that Hublein's "Sizzl Spray" is back on track and the company is rushing to fill shelves for the spring and summer picnic seasons. Also, Tasti Cup's product has been given a clean bill of health by an independent research laboratory in New York. After nine months of quite extensive shelf-life testing, *no* bacteriological breakdown of any kind was discovered, and the taste remained the same as the day the product was packaged.

Milton Berle poked fun at aerosol shaving cream commercials on his April 8 television program. Taking an unmarked can of aerosol shave cream, he deposited a huge pile of foam on his left hand. Then, to show how firm the bubbles were, he drove a huge spike into the foam — and right on through his hand!

* * *

Look for word about a decision on the newest Colgate-Carter court battle (possibly by the time this appears in print). Colgate, you will remember, won the last round when a court decided that the company could use butane-propane mixtures and would not be in violation of Carter's "basic" aerosol shaving cream patent. The latest case hinges on Carter's appeal of that last decision in favor of Colgate.

* * *

Look for the marketing of a new non-chilling aerosol anti-perspirant by a major shave cream marketer toward the end of the year. We hear that the filler of the product has ably conquered the corrosion problem with aluminum salts (through use of a new formulation), and the problem of propellant chilling (by altering the filling method). A development of this type could well "break open" the anti-perspirant market, which we think would do far better in a well-conceived aerosol than in any squeeze bottle or roll-on so far developed.

* * *

As was mentioned in this column about this time last year, aerosol technical papers are appearing with increasing frequency on the programs of the Society of Cosmetic Chemists, the Toilet Goods Association, the Institute of Food Technologists, and of many other trade groups whose interest in pressurized packaging is still a minor one.

* * *

The criminal proceedings against Alexander Guterma in New York, though they may seem remote from the aerosol field, have so far affected two companies in this business. The New York Stock Exchange is reported to be considering banning stock of the Bon Ami Co. from being traded, as these lines are written, and we hear that the Scranton Corp. (parent firm of the Scranton Aerosol Division, new custom filler) has declared for voluntary bankruptcy as a direct result of some of Mr. Guterma's stock transactions.

* * *

Because of the time element, accounts of the May 8th meeting of the International Aerosol Association in Zurich, and the May 12-14 meeting of the Toilet Goods Association, will appear in the June issue of *Aerosol Age*.

* * *

Two well-known aerosol figures who had apparently left the aerosol field some time ago are very much in evidence in aerosol circles again. Ed Zellar, who had been Mojonnier's chief salesman and who left that company two years ago to join the Polychemicals Division of DuPont, was in attendance at DuPont's booth at the Packaging Show, selling Zytel and Delrin aerosol containers. C. C. (Bud) Alexander, vice-president and general manager of American Can's Bradley-Sun Division, who apparently left behind his aerosol interests when Sun Tube withdrew from the aerosol valve business, is back touting his company's new aluminum aerosol container!

"Who the devil has put whipped cream in the medicine cabinet"